



CORPORATION OF GLASGOW

REPORT

OF THE

MEDICAL OFFICER OF HEALTH CITY OF GLASGOW

1931

ORDERED BY THE COMMITTEE OF HEALTH TO BE PRINTED.

GLASGOW

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PREFACE.

The passing of the Local Government Act and the increased work of the Department have considerably augmented the scope of the Annual Report, which now deals with a full year's experience of the transferred services and contains descriptions which will be found in the appropriate sections, dealing with some of the aspects of these added functions. New matter inevitable in a first review has been added, while the Report as a whole has been somewhat remodelled. It is customary to preface it by a brief reference to some of its principal contents.

Population.—The census of 1931 has appeared in detailed form, but a minute scrutiny of its data for local purposes is now being undertaken in order to throw further light on the very important social and medico-social movements which a census is intended to reveal. Some of the broader results may be referred to—(a) The population of the city was 1,088,461 persons, compared with 1,034,174 ten years ago. Taking into account the population of 17,353 added to the city in 1926, the apparent increase of population becomes 36,934, or 3·5 per cent., although, for reasons stated in Section I., statistics during the last decade are subject to considerable dubiety. The rate of increase is small, and it is clear that, apart from other causes, such as the declining birth rate and emigration, there has been considerable migration outwards from the city. It would appear that the history of the early years of the century is repeating itself, and that substantial numbers of Glasgow citizens have overflowed the city boundaries into adjacent county areas where private housing enterprise has been exceptionally busy. The extent of this movement will be apparent when the data have been fully analysed. (b) The census also reveals an important social movement which has been much commented upon, *i.e.*, a progressive reduction in the average number of persons per house, a change which began slowly many years ago. For Glasgow this figure now stands at 4·11, compared with 4·44 at the 1921 census. This important index figure is an indication of the general occupancy of houses, and means a better spacing out of all classes of the population with a lessened degree of crowding generally. It has been declining at each successive census, and that for 1931 is lower than was expected and may be regarded as a reflex of improved social conditions and

reduction of overcrowding resulting in large measure from housing activities. (c) There is recorded a further diminution in the number of one-room houses and of the population occupying them, along with a decided increase in houses of three apartments from 19·4 to 24 per cent., movements chiefly due to the housing policy of the Corporation. Substantial decreases of population are recorded in the central wards of the city and equally substantial increases in the wards on the outskirts (see Table in Section I.). (d) It is a modern feature of populations generally that they are increasingly made up of older people, who bring with them their own peculiar health and public assistance problems, and cause increased attention to be given to the diseases, physical and mental, associated with longevity. As has been explained, all these matters are being made the subject of special and detailed analysis.

Vital Statistics.—A new revised international list of causes of death was issued during the year, which will provide improved statistics and enable comparisons to be made with less ambiguity than has hitherto prevailed. The general death rate for the year stood at 14·2 per 1,000 persons, the same as for the preceding year. It would appear that the rate is becoming more or less stabilised at about this figure. As regards component causes, diseases of the circulatory system (heart disease, etc.), come first in order of magnitude, closely followed by respiratory diseases (pneumonia, etc.). The former group showed a fractional increase, while the latter was considerably reduced owing to the milder winter weather. Cancer has been increasing for a number of years, chiefly owing to the ageing of the population and improved diagnosis. Infectious diseases show variations from year to year and in different parts of the same year, depending on their periodicity and severity. In the early part of the year the general death rate was 19·4 for the first quarter, due chiefly to pneumonia and whooping-cough, while in the later months measles was very prevalent. Scarlet fever made its autumn appearance early, and reached an unusually high prevalence. Though mild in type, it caused 74 deaths compared with 38 during the previous year. These infections, whooping-cough, measles and scarlet fever, caused the mortality rate from infectious diseases to reach 1,412 per million of the population, in contrast with rates of 1,009 and 901 for 1930 and 1929, respectively.

Child Welfare.—The infant mortality rate still remains at a level just over 100 per 1,000 births. Investigation of this unsatisfactory figure throws into relief the respiratory diseases, *i.e.*, pneumonia and

the lung complications of whooping-cough and measles, as the most prominent causes of mortality. Both of these latter were very prevalent during the year. In fact the difference between the infant mortality rate of Glasgow and other large towns is due almost entirely to the higher incidence of diseases which attack the respiratory system. The various clinics continue to run to full capacity, and no change has occurred apart from the transfer of the work from Queen Margaret Settlement to the new clinic in Richard Street, Anderston. The booklet on "Hints on the Management of Children," sold at one penny, has been well received and distributed.

The unification of the Maternity and Child Welfare Branch with the Education Health Service has proceeded in several useful directions of which an account is given by Dr. Arbuckle Brown in the text. It is obvious that these interlocking arrangements have been of benefit to both branches of this united service. A beginning has been made with the newly established central orthopædic clinic, which will serve as a clearing house and treatment centre for young patients suffering from all forms of physical defect. The proposed new principal clinic at Rhymer Street has been designed to serve its area in respect of children of all ages. It is hoped to extend medical examination to children of four years of age on a voluntary basis, in association with medical inspection of school children. It has been arranged that blind children will be referred to the clinics for the blind under the Blind Persons Act. None of these and other expansions of the services involve increase of staff.

Maternal Welfare.—An abrupt and decided increase took place in the demand on the ante-natal service owing to the issue of a new rule for midwives by the Central Midwives Board, leading to an augmentation of both clinics and staff. The full effect of this rule, which makes it compulsory for midwives to send their cases for ante-natal examination to a medical practitioner, has been felt during the year. The total number of first attendances was 6,054, compared with 3,062 during 1930. At the clinic of the Royal Maternity Hospital the increase was from 5,200 to 5,927 first attendances. These figures alone represent somewhat more than one-half of the births occurring annually in the city, and are an indication of the prevailing economic stress.

The maternal death rate has declined from 8.56 per 1,000 births to 6.37, *i.e.*, by 25 per cent., but what this rapid fall means it is impossible at the moment to say. Deaths from accidents of pregnancy were little more than one-third of their volume in 1930, while hæmorrhage is less

by one-half. On the other hand, puerperal sepsis, 3·1 per 1,000 births, the commonest cause of fatality, has shown no tendency to diminish, but rather, if anything, to increase. There is no doubt that better ascertainment of the volume of this disease in recent years in Glasgow has disclosed its true proportions. The whole problem of puerperal sepsis is a difficult one, and has received much study and attention from the point of view of prevention and early treatment. Last year there was included a report by Dr. Margaret Thomas of her experience at Belvidere Hospital. The subject is again dealt with in this year's report, and an effort made to assess the value of the various administrative measures which have so far been adopted. It may be remarked that sepsis following abortion accounts for 25 per cent. of the cases and 20 per cent. of the deaths. In the nature of things, accuracy as regards abortion statistics is difficult to obtain, but the suggestion is that this factor as a forerunner of sepsis is tending to increase.

Mental Services.—During the year several problems connected with the administration of this branch of the service were reported on and considered by the Sub-Committee on Mental Services, touching upon questions of mental hospital accommodation and observation wards. As these reports go fully into important general questions of policy as regards the future development of the mental services, they are included in the text of this Section. In their preparation the assistance and advice of the superintendents of the four mental hospitals on the administrative problems involved was freely sought and willingly given. The mental observation accommodation at Stobhill Hospital now amounts to 208 beds, and an appropriate staff has been appointed. Experience has shown that the added accommodation of 60 beds was urgently necessary. The Corporation has decided to proceed with the proposed extension of Hawkhead Mental Hospital by 200 beds, for which plans have been prepared in collaboration with the City Engineer. Reports from the various mental institutions are included in this Section.

Incidence of Infectious Diseases.—Apart from whooping-cough in the first quarter and measles in the last quarter of the year, the principal feature was the extremely high incidence of scarlet fever (7,020 cases), which overtaxed the hospital accommodation. In allocating hospital beds due regard must be paid to demands for other and more serious affections. Consequently, waiting lists for scarlet fever had to be established, home treatment pressed, and

selection exercised. The possibilities of enforcing or permitting a larger measure of home treatment of scarlet fever are being explored as the result of experience thus obtained, and a discussion of this is included in the text of the Report. Secondary cases of scarlet fever in the same house, due to home treatment or delay in admission, occurred in slightly higher proportion than where immediate admission to hospital was arranged, and the impression gained was that difficulties regarding removal did not materially influence the magnitude of the outbreak. Much depends, however, on the infectivity of scarlet fever, and a good deal of caution will be necessary in applying a more general policy of home treatment under existing conditions. The type was mild, with a mortality rate of one per cent.

Enteric infections continue low in incidence, with 112 cases in all, of which 46 were due to paratyphoid B. infection. Twenty-three cases were associated with ice cream, the vendor having had enteric fever and being a suspected carrier. One or two familial outbreaks occurred. Diphtheria is showing signs of reduction in incidence, as are also diseases of the central nervous system. A review is given of post-encephalitis lethargica, of which some 420 cases still remain, many of them invalid and helpless, mostly the aftermath of the 1923 epidemic.

Tuberculosis.—In the Annual Report for 1925 there was inserted an arithlog chart, showing the marked decline in the death rates from phthisis and non-pulmonary forms of tuberculosis. This year further charts are included, showing the behaviour of these affections in more detail over the last ten years. Three points may be noted—(a) There is a further continued decline in the phthisis death rate for children under fifteen years of age by one-third in ten years, a very important phenomenon. (b) Above these ages the rate shows a slight tendency to rise, but the principal modern problem is the stationary incidence and intractable nature of the disease in the young adult between the ages of 15 and 25 years. (c) The death-rate from non-pulmonary tuberculosis continues to decline, especially in children. The subject of non-pulmonary tuberculosis, the incidence of the bovine type, and the modern views as to its further prevention are reviewed in the appropriate Section. Opinion is hardening in favour of compulsory pasteurisation of raw milk not produced in a tubercle free condition, at any rate for large centres of population.

Reference is made to a joint report, dated July, 1931, by the Medical Officer of Health and the Veterinary Surgeon to the Committee on Health. The Corporation subsequently (May, 1932) approved of

the following resolution, "That it be remitted to the Committee on Parliamentary Bills to include in the next Provisional Order to be promoted by the Corporation a clause enabling the Corporation to require (1) that all milk brought into or produced within the city for human consumption shall, unless it comes within the category of Certified or Grade "A" (Tuberculin Tested) milk, be efficiently pasteurised before distribution; (2) that the process of pasteurisation be approved by the Corporation; and (3) that the pasteurising plant be subject to the approval and supervision of the Corporation." The principal arguments in favour of this measure *qua* bovine tuberculosis, apart from the admitted safeguard of pasteurisation against milk borne infections, such as scarlet fever, the enteric fevers, diphtheria, brucella abortus, etc., may be summarised as follows:—(1) More than one-half of the non-pulmonary infections in children under fifteen are due to the bovine tubercle bacillus, as shown by Dr. W. S. Blacklock, Pathologist to the Sick Children's Hospital, in a recent investigation. It may be estimated that there are about 1,000 children in the city so affected. (2) Bovine bacilli are found to be present in 14 per cent of samples of raw milk entering Glasgow by road or rail. The more milk is bulked for distribution the more the infection is distributed. (3) The production of milk from tubercle free herds has advanced very slowly, mainly due to lack of public demand and its relatively higher price. At the end of last year there were 67 Certified and 77 Grade "A" (Tuberculin Tested) herds in Scotland, containing 3,081 and 2,911 cows, respectively, out of an approximate total of 350,000 milk cows. This is a very small proportion, but, even so, the amount available for sale in Glasgow exceeds the demand. (4) The destructive effect of proper pasteurisation on the bovine bacillus has been amply demonstrated. The results of laboratory tests are everywhere conclusive. In Glasgow, Dr. W. R. Wiseman, the City Bacteriologist, has found from numerous samples examined that adequate pasteurisation by the holder process, efficiently conducted, is capable of eliminating danger of infection. On the other hand, plants of "flash" type and badly conducted plants are not satisfactory. It is estimated that the city consumes about 67,000 gallons daily, of which two-thirds are pasteurised by "holding" methods, while of the remaining third (*i.e.*, 20,000 gallons) about half is "flash" pasteurised, and the remaining half consumed raw. The changes which occur in the composition of milk, due to heating for half an hour at the prescribed limit of 145° F., are small, and the position may be summed up in the following quotation from the Memorandum on Bovine Tuberculosis in Man, issued last year by the Ministry of Health, "that pasteurisa-

tion carried out in a suitable apparatus and under strict scientific control is capable of protecting the consumer from the danger of infection with the tubercle bacillus, and that milk so treated appears to retain its valuable food properties practically unimpaired."

Venereal Disease.—The Section dealing with the venereal diseases scheme records a decisive reduction of 27 per cent. in new cases of syphilis attending the centres, with the exception of Broomielaw, which is mostly attended by seamen. For various reasons this would appear to mean a real reduction in incidence. Another striking phenomenon is the diminution over the past few years of congenital disease in children to quite a remarkable extent. The report of Dr. Peters refers to an improved tendency to continue under treatment, to the useful effect of "following up" of cases, and to the fact that, as the result of modern treatment, the infective period in the treated patients is very much shortened. The problem of gonorrhœa is different, the figures for numbers treated being much as before. The system of consultation, investigation and discussion among the clinic staffs of methods of administration and treatment, originated by Dr. Peters, is being continued with great advantage.

Although properly a part of child welfare, ophthalmia neonatorum may be referred to here. Dr. Nora I. Wattie has taken over charge of its administration and treatment. Routine examination for the causative organism has been carried out by Dr. W. R. Wiseman in every case reported as showing signs of inflammation of the eyes. It is intended to continue this in future years in order to obtain an epidemiological picture of the part played by different organisms causing affections of the eyes in newly born children, in order to decide upon possible preventive measures. As regards ophthalmia due to the gonococcus, its prevention is closely associated with the detection of gonorrhœa in pregnant women, the symptoms of which are often slight, while detection of the gonococcus is by no means easy. The difficulty of making a diagnosis is greater than is commonly supposed.

Housing.—The linings for new houses granted by the Dean of Guild Court for the year ending August, 1931, numbered 4,306 compared with 4,191 for the preceding year. These were mostly composed of three and four-apartment houses, 2,220 and 1,900, respectively. The more cheaply rented three-apartment "intermediate" house is the most useful and popular, though many families occupying smaller houses are unable to take advantage of them. The problem of the subdivision of larger centrally situated houses is becoming more

and more obvious. It forms an aspect of housing which merits early attention. Several quite excellent reconstructions of this kind have been carried out by private enterprise.

Proceedings under the Housing Acts as regards slum clearance and rehousing are described by Dr. W. G. Clark in the Housing Section. Reviewing the procedure as at the end of the year in connection with uninhabitable houses since operations associated with rehousing began in 1923-24, it appears that 6,030 houses have been closed or demolished since then as the result of clearance schemes, that a further 925 have been similarly dealt with under closing orders, and that approximately 1,200 have been dealt with as dangerous buildings by the Master of Works (most of the tenants thus displaced being accommodated in rehousing schemes). Though some overlapping occurs as between these displacements, it may be estimated that some 8,000 families have been displaced during the past eight years, *i.e.*, at the rate of a thousand per annum. At the close of the year the number of houses provided and occupied in rehousing schemes was 5,677, considerably short of the actual displacements during the period. This illustrates what has been previously alluded to, the fact that the provision of rehousing schemes tends to create a reservoir of houses which, if they continue to be devoted to the specific purpose of rehousing, will tend more and more to assist the routine closure of uninhabitable houses, a very important feature of housing procedure.

The supervision of rehoused families has passed beyond the experimental stage. The observations and routine inspections made indicate that the results are being maintained, and consequently the more detailed reports by the staff so engaged are omitted this year. Reports kindly furnished by certain headmasters of schools in the east of the city on the children from rehoused families are again included. The problem of vermin, which threatened to become serious, may be regarded as well under control. The reports of the Divisional Sanitary Inspectors contain their observations on housing matters, in particular the public health value of the "intermediate" house in relieving overcrowding in smaller dwellings.

The remaining Sections deal with a variety of other special services, including the work of the Bacteriological Laboratory, Air Purification, Food Inspection, the Port Local Authority, and general sanitary operations. The reports of the Divisional Sanitary Inspectors describe a variety of environmental and preventive functions carried out in their areas. Brief accounts of the work of the Infectious Disease and Tuberculosis Hospitals are included.

The General Hospitals.—Last year a brief reference was made to the functions of the transferred hospitals, as the Local Government Act came into operation on 15th May, 1930. A full year's experience has now been gained, and a valuable and comprehensive statement on the administration and scope of these institutions, prepared by Dr. William Martin and Dr. R. J. Peters, is now included in this Report. It deals with such matters as allocation of beds to particular medical, surgical and special purposes, including maternity, classification of patients and methods of recording the volume of admissions and results of treatment according to disease, the work of the district medical staff, along with a description of the precise functions performed by each of the transferred hospitals. This report will be invaluable as a basis for future policy.

The foregoing paragraphs are intended to call attention to certain selected features of public health work and administration which are engaging special attention. In presenting this Report I desire to acknowledge the services of the various contributors. Mr. William M'Kean, Assistant Secretary to the Department, has as usual given much time and care to its preparation and arrangement, while the services of various members of the staff on the statistical side should receive mention.

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Medical Officer of Health.

PUBLIC HEALTH DEPARTMENT,
GLASGOW, 26th July, 1932.

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REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR

1931

PART I

SECTION I.

POPULATION, &c.

The report on the Census of Glasgow taken on 26th April, 1931, has just been published. The population of the city, as ascertained at that date, was 1,088,461. At the 1921 census the population was 1,034,174, to which must be added 17,353 for the areas annexed by the city on 15th May, 1926, making a total of 1,051,527. The apparent increase is therefore 36,934 or 3·5 per cent., a figure which is subject to qualification.

As has been explained in recent annual reports, the population census taken in 1921 was delayed until June, a period of the year when many city residents are absent on summer holiday, a fact which caused the census figure to be understated to an extent estimated at about 50,000 persons. This suggests that an actual decrease in the population within the present extended area of the city has taken place, instead of the increase as stated above. The alteration in the city boundary and the dubiety surrounding the 1921 census make it difficult to estimate exactly the changes which have taken place during the intercensal period.

Population changes may be looked at in another way. The number of births during the ten years, 1921-31, was approximately 246,000,

and the deaths 158,000, so that the natural increase of population, *i.e.*, excess of births over deaths, was 88,000, compared with the recorded increase of slightly less than 37,000 persons. The apparent loss is thus about 50,000. It may therefore be inferred that considerable migration has taken place, and it is certain that much of this is accounted for by movement into new houses, which have been built in large numbers outwith the City boundary. The City has had previous experiences of this kind, and, when the recent census figures for surrounding areas come to be analysed in detail, it will be possible to estimate the extent to which this local migration has affected the population and also the approximate volume of transference of population to other parts of the country, a problem of great importance in view of the industrial position of the City and of the area of the Clyde Valley as a whole.

It is usual to estimate the population as at 30th June, the middle of the year, for statistical purposes, but, owing to the comparatively small change which has taken place during the past decennium, the actual census figures have been employed for the purposes of the vital statistics in this report.

Of the persons enumerated, 524,475 or 48·2 per cent. are males, and 563,986 or 51·8 per cent. are females. The intercensal increase of the male population was 11,204 or 2·2 per cent., while the increase in the female population was 25,730 or 4·8 per cent. The age and sex distribution of the population compared with the 1921 census, may be summarised as follows:—

MALES.

Ages.	1931.	1921.	Increase or Decrease 1921-31.	
			No.	Per cent.
— 5	49,809	51,875	—2,066	— 4·0
—15	99,776	102,627	—2,851	— 2·8
—25	94,959	96,121	—1,162	— 1·2
—35	81,385	77,516	+3,869	+ 5·0
—45	66,647	69,462	—2,815	— 4·0
—55	59,831	60,438	— 607	— 1·0
—65	45,595	36,012	+9,583	+26·6
+65	26,473	19,220	+7,253	+37·7
All Ages,	524,475	513,271	+11,204	+ 2·2

FEMALES.

— 5	49,168	51,142	—1,974	— 3·8
—15	98,843	102,738	—3,895	— 3·8
—25	103,714	104,406	— 692	— 0·7
—35	92,610	88,353	+4,257	+ 4·8
—45	76,391	73,668	+2,723	+ 3·7
—55	64,065	56,946	+7,119	+ 1·2
—65	45,078	35,737	+9,341	+26·1
+65	34,117	25,266	+8,851	+ 3·5
All Ages,	563,986	538,256	+25,730	+ 4·8

Sex and Age.—All of the reduction in both males and females under five years of age occurs in the first year of life, and reflects the low birth rates now prevailing. At school ages, the reduction is largely due to the lower number at 12-15 years, which is definitely associated with the low birth rates obtaining during the war years. In almost all the other quinquennial age periods above these ages, increases are shown in the census returns, except in the case of males between 35 and 50 years of age, where the decreases are a reflex of war casualties.

Conjugal Condition.—The following summary shows the conjugal condition of males and females at the censuses of 1921 and 1931.

				Percentage.			
				Males.		Females.	
				1921.	1931.	1921.	1931.
Single, ...	...	...	...	41.1	39.8	39.2	39.2
Married, ...	...	...	...	53.1	54.2	49.3	49.6
Widowed, ...	...	...	...	5.7	5.9	11.4	11.1
Divorced, ...	...	...	...	0.1	0.1	0.1	0.1
Condition not stated, ...	...	...	...	0.1	0.0	0.1	0.0

Birthplace.—Of the total population enumerated 980,517 or 90.1 per cent. were Scottish born, compared with 87.9 per cent. at the 1921 census. Of the total born in Scotland, Glasgow itself was the birthplace of almost 69 per cent. The following summary shows the principal birthplaces of the population of the city:—

					Males.	Females.	Total.	Percentage
Scotland, ...	...	...	...	...	468,491	512,026	980,517	90.1
England, ...	...	...	...	...	18,790	20,270	39,060	3.6
Wales, ...	...	...	...	...	506	539	1,045	0.1
Ireland—Northern, ...	...	...	...	...	15,623	13,339	28,962	2.7
Free State, ...	...	...	...	...	12,603	10,657	23,260	2.1
Not specified, ...	...	...	...	...	89	68	157	0.0
Isle of Man, Channel Islands, ...	...	...	...	...	118	146	264	0.0
British Dominions, Colonies, &c., ...	...	...	...	...	2,977	2,116	5,093	0.5
Foreign Countries, ...	...	...	...	...	5,183	4,615	9,798	0.9
Born at Sea or not stated, ...	...	...	...	...	95	210	305	0.0
Totals, ...	...	...	...	...	524,475	563,986	1,088,461	100.0

Ward Populations.—By the courtesy of the Registrar-General, preliminary figures were supplied, giving the number of persons enumerated in each municipal ward, which have made it possible to complete the tables of rates in the vital statistics given in the Appendix. In Table I. in the Appendix, the ward populations shown are now confirmed by the recent issue of the census report, but the institutional populations contained in this report were obtained by the usual local inquiry, as at 30th June, as census information regarding them was not available.

The following table, taken from the census report on Glasgow, is of considerable interest, as it shows the intercensal changes in the ward populations, during the decennium 1921-31, especially as it is now proposed to readjust the boundaries of the wards for both national and municipal electoral purposes.

GLASGOW—POPULATION, AVERAGE SIZE OF HOUSE
AND NUMBER OF PERSONS PER HOUSE, ETC.

MUNICIPAL WARDS.	Population.		Increase or Decrease.		Rooms per House.	Persons per Room.	% of Popn. living more than two per Room.
	1931.	1921.	No.	%			
1. Shettleston and Toll- cross,	39,869	32,288	+7,581	+23·5	2·45	1·78	46·8
2. Parkhead,	39,418	36,193	+3,225	+ 8·9	2·07	2·07	56·3
3. Dalmarnock,	35,824	41,301	—5,477	—13·3	1·71	2·47	69·3
4. Calton,	34,389	38,287	—3,898	—10·2	2·07	2·04	58·4
5. Mile-end,	21,430	26,222	—4,792	—18·3	1·75	2·38	66·7
6. Whitevale,	22,439	24,609	—2,170	— 8·8	2·13	1·95	52·1
7. Dennistoun,	25,560	21,176	+4,384	+20·7	2·91	1·33	23·8
8. Provan,	41,788	30,802	+10,986	+35·7	2·36	1·78	46·3
9. Cowlairst,	22,512	25,315	—2,803	—11·1	2·01	1·90	47·5
10. Springburn,	25,547	19,748	+5,799	+29·4	2·47	1·76	44·6
11. Townhead,	27,376	29,430	—2,054	— 7·0	2·38	1·76	44·4
12. Exchange,	16,523	19,592	—3,069	—15·7	2·14	1·88	50·0
13. Blythswood,	13,705	17,236	—3,531	—20·5	3·08	1·43	36·9
14. Anderston,	26,909	31,068	—4,159	—13·4	2·26	1·87	51·6
15. Sandyford,	20,232	24,023	—3,791	—15·8	3·00	1·43	37·0
16. Park,	20,727	20,933	—206	— 1·0	4·42	0·91	11·3
17. Cowcaddens,	35,723	42,397	—6,674	—15·7	2·02	2·09	58·8
18. Woodside,	33,072	36,638	—3,566	— 9·7	2·27	1·76	49·4
19. Ruchill,	41,243	26,645	+14,598	+54·8	2·41	1·85	45·4
20. North Kelvin,	21,029	22,356	—1,327	— 5·9	2·80	1·35	34·9
21. Maryhill,	25,524	25,550	—26	— 0·1	2·38	1·75	45·6
22. Kelvinside,	23,348	18,046	+5,302	+29·4	6·01	0·65	1·8
23. Partick (East),	28,541	30,330	—1,789	— 5·9	2·91	1·41	39·2
24. „ (West),	23,730	25,834	—2,104	— 8·1	2·64	1·41	36·5
25. Whiteinch,	56,430	33,848	+22,582	+66·7	3·22	1·23	22·6
26. Hutchesontown,	38,851	40,099	—1,248	— 3·1	1·78	2·29	63·8
27. Gorbals,	46,831	52,767	—5,936	—11·2	2·32	1·94	52·5
28. Kingston,	30,336	34,136	—3,800	—11·1	2·34	1·92	52·7
29. Kinning Park,	35,763	37,265	—1,502	— 4·0	2·28	1·84	51·4
30. Govan,	35,969	37,361	—1,392	— 3·7	2·25	2·01	59·0
31. Fairfield,	32,188	30,096	+2,092	+ 7·0	2·36	1·76	43·6
32. Pollokshields,	28,842	20,549	+8,293	+40·4	4·83	0·80	7·0
33. Camphill,	19,007	18,497	+ 510	+ 2·8	3·51	0·98	8·1
34. Pollokshaws,	21,171	19,683	+1,488	+ 7·6	3·13	1·25	33·5
35. Govanhill,	32,514	29,951	+2,563	+ 8·6	2·55	1·55	31·5
36. Langside,	17,980	17,030	+ 950	+ 5·6	3·83	0·96	7·1
37. Cathcart,	26,121	14,226	+11,895	+83·6	4·20	0·87	9·0
CITY,	1,088,461	1,051,527	+36,934	+ 3·5	2·68	1·54	42·3

(Figures extracted from Census Report on Glasgow).

The greatest intercensal increases in ward populations are 22,582 in Whiteinch (66·7%), 14,598 in Ruchill (54·8%), and 11,895 in Cathcart (83·6%), followed by Provan, Pollokshields, and other wards on the outskirts of the city, which had a considerable amount of vacant building ground. The increases in Pollokshields, Ruchill and Provan Wards largely resulted from the transfer of populations to Corporation Housing Schemes, private enterprise in Cathcart, and both agencies in Whiteinch. The largest decreases recorded during the past decennium were in wards where houses have been demolished under slum clearance schemes. *i.e.*, Cowcaddens with a decrease of 6,674 (15·7%), Gorbals with 5,936 (11·2%), Dalmarnock with 5,477 (13·3%), and Mile-end with 4,792 (18·3%), followed by Anderston, Calton, Kingston and Sandyford.

Institutional Population.—As already stated, Table I. in the Appendix was prepared before the census institutional population was available, but it is now found, from the published report, that there is very little difference between the total figures. The local return shows a total of 31,318, compared with 31,603 in the census report, but as these institutional numbers in the respective wards have been deducted from the total census population, only slight variations in the two returns will be shown in the house population. The number resident on ships at the 1931 census was 1,479.

Density.—The number of persons per acre is 37, which is the same as for the preceding year, and compares with 56 as at the 1921 census. Woodside Ward, with a density of 195 compared with 200 for the preceding year, has the highest density. Townhead comes next with 156, and North Kelvin next with 144. Altogether, twelve of the wards have a density of 100 or more persons per acre as is shown in Table I. An extension of the city boundary was made as at 15th May, 1931, in order to take in areas to the north-east of the city, on which Corporation houses had been built. The wards affected were Shettleston, where the area annexed was 39 acres, Provan, where 9 acres were added, and Springburn, to which were added 487 acres. These extensions, however, have not been included in the acreage given in Appendix Table I.

Occupations.—A detailed tabulation of occupations for the two sexes is given in the Census Report for the City of Glasgow (Vol. I., Part 2). As the matter is of some interest, the following abridged return has been abstracted and a column added showing as a comparison the percentage of population engaged in similar occupations at the 1921 census. Quite a number of alterations have been made in the classification of occupations at the last census from the code followed in 1921, and in this respect adjustments have been made as far as practicable with the extended list which appears in the Appendix of the 1921 Census. In some instances the percentage has been based on adjusted figures given in the text of the Census Report.

PRINCIPAL OCCUPATION ORDERS IN GLASGOW.

ORDER.	OCCUPATION.	Persons.			Percentage of Total Occupied.			% 1921.
		Males.	Females.	Both Sexes.	Males.	Females.	Both Sexes.	Both Sexes.
XXIII.	Commercial Occupations (Clerks excluded),	41,607	28,684	70,291	11·8	17·5	13·6	10·9
VII.	Metal Workers (not Precious Metals),	65,335	1,458	66,793	18·5	0·9	12·9	17·8
XXXI.	Other and Undefined Workers (generally unskilled),	52,986	5,794	58,780	15·0	3·5	11·4	10·2
XXII.	Workers in Transport and Communication,	53,241	4,619	57,860	15·0	2·8	11·2	11·0
XXVII.	Personal Service Occupations, ...	11,427	38,697	50,124	3·2	23·6	9·7	7·2
XXVIII.	Clerks, etc. (including Civil Service and L.A.),	22,888	24,825	47,713	6·5	15·1	9·2	*
XIII.	Makers of Textile Goods, Dress, &c.,	6,286	16,868	23,154	1·8	10·3	4·5	5·3
XXV.	Professional Occupations (excluding Clerical Staff),	9,502	10,297	19,799	2·7	6·3	3·8	3·6
XV.	Workers in Wood and Furniture, ...	16,256	737	16,993	4·6	0·4	3·3	4·0
XXIX.	Warehousemen, Packers, &c., ...	9,028	6,379	15,407	2·6	3·9	3·0	2·8
XVIII.	Builders, Bricklayers, Workers in Stone, etc.,	12,587	9	12,596	3·6	0·0	2·4	2·8
XIV.	Makers of Food, Drink and Tobacco,	6,243	5,377	11,620	1·8	3·3	2·2	3·1
XII.	Textile Workers,	1,944	9,133	11,077	0·5	5·6	2·1	2·7
XIX.	Painters and Decorators,	6,134	1,650	7,784	1·7	1·0	1·5	1·3
XVII.	Printers and Photographers, ...	4,526	1,842	6,368	1·3	1·1	1·2	1·2
IX.	Electrical Apparatus Makers, Electricians,	5,325	99	5,424	1·5	0·1	1·0	1·1
XVI.	Paper and Cardboard Workers, Bookbinders,	1,120	3,423	4,543	0·3	2·1	0·9	1·1
XXX.	Stationary Engine Drivers, Dynamo and Motor Attendants, ...	4,465	11	4,476	1·3	0·0	0·9	1·0
III.	Mining and Quarrying Occupations,	4,397	13	4,410	1·2	0·0	0·8	1·3
XXIV.	Public Administration (excluding Clerks) and Defence,	4,053	109	4,162	1·1	0·1	0·8	*
XXI.	Workers in Mixed or Undefined Materials,	3,293	194	3,487	0·9	0·1	0·7	1·8
XXVI.	Persons Professionally Engaged in Entertainments and Sport, ...	2,502	437	2,939	0·7	0·3	0·6	0·4
II.	Agricultural Occupations,	2,196	308	2,504	0·6	0·2	0·5	0·5
XX.	Workers in other Materials,	1,348	1,152	2,500	0·4	0·7	0·5	0·4
XI.	Workers in Skins and Leather, ...	1,346	850	2,196	0·4	0·5	0·4	0·5
—	All other occupations (I., IV., V., VI., VIII., X.),	3,722	924	4,646	1·0	0·6	0·9	2·3
		353,757	163,889	517,646	100·0	100·0	100·0	100·0

* Owing to intercensal change of occupational classification comparative figures are not available.

Inhabited and Empty Houses.—In Table II. of the Appendix, the numbers of inhabited and empty houses in each municipal ward are given as supplied from the special enumeration of the City Assessor, and are compared with the corresponding numbers for the respective wards as at Whitsunday, 1930. The large increases reflect building activity, where housing schemes are being erected, as in Shettleston and Tollcross, where there has been an increase of 752 in the number of inhabited houses, in Whiteinch 654, and in Dennistoun 521. In these districts the Corporation has erected large housing schemes, as well as in Ruchill and Provan. Private house building accounts for an

increase of 234 in Cathcart, although in this district many houses have been built just beyond the City Boundary. The largest decrease in the number of occupied houses is 519 in Calton, as the result of an extensive slum clearance scheme. Other large decreases are 160 in Cowcaddens and 110 in Kinning Park.

The total number of houses occupied at Whitsunday was 261,179. In the census return the number of occupied houses is given as 256,399 at 26th April. The difference (4,780) may be largely accounted for by the number of sub-divided houses, 4,060 given in the census, and other adjustments by the City Assessor, who makes corrections for the number of inhabitant occupiers, *i.e.*, caretakers, janitors, etc., while additional new houses would be occupied during the month which elapsed between the date of the census and Whitsunday, when the local annual survey is made.

Based on the census return, the number of persons per house is now 4.11, compared with 4.44 at the 1921 census. This very important figure is an indication of the general condition of occupancy of houses, and means a much better spacing out of the population with a lessened degree of crowding. This index has been declining at each successive recent census, and that for 1931 is lower than was expected and may be regarded as a satisfactory pointer in respect of improved social conditions and reduction of overcrowding resulting from housing activities. The detailed figures of the census itself corroborate the improvement.

The number of empty houses in the city at the middle of the year was 1,917, compared with 2,279 a year before. This reduction is largely due to the closure or demolition of uninhabitable houses. The largest numbers of unoccupied houses are situated in residential wards, *e.g.*, 183 in Park and 120 in Kelvinside, where most of them are of large size and high rents, and are being vacated for smaller and more modern houses.

NUMBER OF UNOCCUPIED HOUSES CLASSIFIED ACCORDING TO NUMBER OF APARTMENTS.

			Old City.		Extended City.			
			1913	1921	1928	1929	1930	1931
One apartment,	...	...	4,169	33	54	125	204	154
Two apartments,	...	...	9,762	17	27	162	324	155
Three	"	...	2,731	9	33	198	494	263
Four	"	...	954	8	46	163	498	443
Five	"	and up,	1,094	76	213	477	759	902
			18,710	143	373	1,125	2,279	1,917

Linings Granted by Dean of Guild Court.—A summary of the linings granted by the Dean of Guild Court since 1919 is given in Table III. of the Appendix. During the year to 31st August, 1931, the linings granted numbered 4,306, compared with 4,191 during the preceding year. There were considerably fewer linings for two-apartment houses, there being only 122 this year, compared with 506 and 570 during the two preceding years. For three-apartment houses, the number of

linings granted was 2,220, as against 1,958 in 1930, while the respective figures for four-apartment houses were 1,900 and 1,295. These returns indicate the usual concentration on three and four-apartment houses. The number for the latter size of house forms a larger proportion of the total linings than has been the case since the war, with the exception of a period during 1921-22, when apparently house-building operations practically ceased.

ABSTRACT OF METEOROLOGICAL CONDITIONS.

The year under review was chiefly remarkable for excessive dullness and a considerable amount of rain during the summer months, when there were periods of rather cold weather. The average temperature, as recorded in Springburn Public Park was 46.5° F., compared with 47.7° F. during 1930. Compared with 1930 the mean temperature was lower in every month, with the exception of February and November. The highest temperature recorded was 73° F., which occurred in August, compared with a maximum of 79° F. during the preceding year; in fact it was lower than any maximum in the last ten years. These conditions were associated with a greater number of days on which rainfall was recorded, 251, compared with 234 in 1930, but the total amount of rain registered, 43.06 inches, is only very slightly higher. During the summer months of May, June and July, almost fifteen inches of rainfall were recorded, although the wettest month was November with 6.92 inches. The autumn months were comparatively dry, the total rainfall amounting to 7.46 inches. The averages during the past ten years were—number of days on which rainfall was recorded, 242; amount of rain collected, 42.90 inches. There was more snow than usual during the first quarter of the year.

The hours of bright sunshine, 1,078, although greater by 56 than the corresponding figure for the preceding year, were definitely below the annual average of 1,125, during the previous ten years. There were only 110 hours registered in June, compared with 195 in the same month of 1930, but, on the other hand, there were 192 hours of bright sunshine in August, against the corresponding figure of 107 a year before.

CENTRAL HEALTH LECTURES.

The Health Committee continued to co-operate with the Glasgow Burgh Insurance Committee, the Scottish Committee and the Glasgow Branch of the British Social Hygiene Council, in the organisation of lectures on health subjects of interest to the public generally, and especially to those interested in welfare and social work. This year the number of lectures was reduced to three, of which the following are particulars. The estimated attendances totalled 2,600.

Date.	Subject.	Lecturer.	Estimated Attendance.
Dec. 8	"The Economics of Venereal Disease,"	Dr. W. G. Clark, ...	900
Jan. 19	"Mental Defects in Children—Education, Training and Aftercare."	Dr. G. A. Brown, ...	850
Feb. 9	"Animal Microbes and Disease,"	Prof. J. Graham Kerr,	850

Subsequently the Con-Joint Committee arranged for three district health lectures on "Venereal Diseases—their Serious Effects and Treatment." The following are particulars of these:—

Date.	Hall.			Lecturer.		Estimated Attendance.
Mar. 22	Bridgeton Public Hall,	...	...	Dr. Nora Wattie,	...	500
Mar. 23	Kingston Public Hall,	...	...	Dr. W. G. Clark,	...	700
Mar. 24	Springburn Public Hall,	...	...	Dr. R. J. Peters,	...	500

At all of these lectures an opportunity was taken of exhibiting films on health subjects of an educational nature.

LEGISLATION.

During the year the following Acts of Parliament and Regulations, dealing directly with Public Health, or having a bearing thereon, came into operation.

ACTS OF PARLIAMENT, 1931.

Foodstuffs (Prevention of Exploitation), 1931.—To empower the Board of Trade to take exceptional measures for preventing or remedying shortages in, or unreasonable increases in the price of certain articles of food or drink.

Housing (Rural Workers) Amendment, 1931.—Extends the time within which applications for assistance under the Housing (Rural Workers) Act, 1926, may be received by Local Authorities.

CIRCULARS, ORDERS, REGULATIONS, &C., ISSUED DURING 1931.

Maternity and Child Welfare.

Circular No. 32, dated 27th March, 1931.—Refresher course for Health Visitors, Glasgow.

Circular No. 35, dated August, 1931.—Refresher course for Health Visitors, Aberdeen.

Circular No. 33, dated 7th July, 1931.—Ophthalmia neonatorum.

Memorandum No. 34, dated July, 1931.—Prevention of Ophthalmia neonatorum.

Infectious Diseases.

Order No. 1010/S. 52, dated 4th December, 1931.—Public Health (Chickenpox) Amendment Regulations (Scotland), 1931.

Circular No. 34, dated 24th April, 1931.—Local Government Act, 1929; Venereal Diseases and Propaganda by the British Social Hygiene Council.

Respiratory Diseases and Tuberculosis.

Order No. 341, dated 30th April, 1931.—Silicosis and Asbestosis (Medical Arrangements) Scheme, 1931.

Order No. 342, dated 30th April, 1931.—Various Industries (Silicosis) Scheme, 1931.

Order No. 343, dated 30th April, 1931.—Metal Grinding Industries (Silicosis) Scheme, 1931.

Order No. 344, dated 30th April, 1931.—Asbestos Industry (Asbestosis) Scheme, 1931.

Order No. 1140, dated 31st December, 1931.—Asbestos Industry Regulations, 1931.

Port Local Authority.

Order, dated 29th June, 1931.—Restrictions on Aliens.

Circular No. 32, dated 6th April, 1931.—Deratization and Deratization Exemption Certificates.

Circular No. 33, dated 6th April, 1931.—International Sanitary Convention, 1926; Ship-borne Infections.

Housing.

Memorandum No. 33, dated 5th May, 1931.—Hostel Accommodation for Single Persons.

Regulations, No. 447/S. 28, dated 29th May, 1931.—Seasonal Workers' Accommodation Bye-laws.

Circular, No. 37, dated 17th July, 1931.—On Grants or Loans, etc.

Memorandum No. 36, dated July, 1931.—Management of Houses.

Memorandum No. 38, dated 4th August, 1931.—Suggested Bye-laws for Preventing and Abating Overcrowding, and for Securing and Maintaining a Proper Standard of Housing Conditions.

Food.

Order No. 116/S. 12, dated 7th January, 1931.—Public Health (Condensed Milk) Regulations (Scotland), 1931.

Order No. 1/S. 1, dated 7th January, 1931.—Public Health (Dried Milk) Regulations (Scotland), 1931.

Lunatics.

Circular No. 216, dated 26th February, 1931.—Escape from Asylum.

Circular No. 219, dated 21st April, 1931.—Discharge of Unrecovered Pauper Lunatic.

Circular No. 218, dated 28th April, 1931.—Scheme for Payment to Voluntary Associations.

Circular No. 222, dated 30th December, 1931.—Mental Defectives who join the Army.

Miscellaneous.

Order No. 74/S. 8, dated 12th February, 1931.—Census (Scotland) Regulations, 1931.

BLIND PERSONS ACT, 1920.

The work of the Regional Blind Clinic—opened in August, 1929—was continued during the year. According to the 1931 census there are 2,696,459 persons in Glasgow and the South-west of Scotland, which is the area served by the clinic. The Department of Health for Scotland during 1931 arranged for the setting up of four other regional blind clinics largely based on the Glasgow model. The Department also, in conjunction with the Scottish Education Department, issued in October, 1931, a Joint Memorandum on Medical Certification and Standard of Blindness. This report incorporated the work of a sub-committee of ophthalmologists which included the surgeons on the staff of the Glasgow Clinic. The standard of blindness, as officially

recommended by the Department, follows fairly closely that employed in Glasgow since the institution of the clinic.

The joint memorandum also contained two important recommendations; firstly, that all applicants for technical training in institutions for the blind should be examined at the regional clinics, and, secondly, that all school children in special classes for the blind should be examined at the clinics to ensure that they came within the standard of blindness of the Blind Persons Act. Both these recommendations were necessary if the unfortunate consequences were to be avoided which were liable to occur where the regional clinic was not the certifying unit for all purposes in connection with blind welfare. All candidates for technical training are now examined at the clinic—formerly the report of the examining surgeon of the Education Authority accepting responsibility for training was scrutinized on behalf of the Joint Committee by its medical adviser. Arrangements were also made towards the end of the year for the examination of all children being educated as blind pupils.

Reference was made to the Glasgow Blind Clinic in a report by the Prevention of Blindness Committee of the Union of Counties Associations for the Blind on the Certification of Blindness, etc., published in December, 1931. In connection with the preparation of this report the clinic was visited and its administration studied by one of its signatories.

During the year the methods of collecting and analysing the valuable data available of causes of blindness were revised, and reference to this subject will be made in next year's report.

Work of the Clinic.—During the year 1931 there were examined, for the first time, 803 applicants at the clinic and 107 at home, a total of 910; in addition 147 candidates were re-examined, making for the year a total of 1,057 cases examined. In 1930 there were examined 1,166 candidates, which with 75 re-examinations makes a total of 1,241 cases examined. Thus, compared with the previous year, there was in 1931 a fall in the number of applicants examined for the first time and a considerable increase in the number re-examined. It is anticipated that in the next few years the number of candidates examined for the first time will probably decrease, while the number re-examined may continue to rise. Of the 910 candidates examined in 1931, 563, or 61·9 per cent., were certified blind within the meaning of the Act. The proportion of cases certified in 1929 was 74 per cent., and in 1930, 71 per cent.

Source of Candidates.—The source of candidates is shown in the following statement:—

Applicants for Blind Pension,	...	...	...	...	247
Applicants for Increased Public Assistance,	...	...	...	...	289
Applicants for Technical Training,	...	...	...	...	74
Applicants for Free Tramway Pass,	...	...	...	...	65
Applicants referred by Mission to Outdoor Blind,	...	...	...	...	163
Unclassified,	...	...	...	...	72

It will be noted that the largest number of candidates examined are those referred by Public Assistance Departments.

TABLE I.

SHOWING THE AGE AND SEX INCIDENCE OF APPLICANTS CLAIMING TO BE BLIND, EXAMINED AT THE CERTIFYING CLINIC DURING THE YEAR 1931.

Ages—Certified.				Ages—Rejected.		
	Males.	Females.	Total.	Males.	Females.	Total.
-1, ...	—	—	—	1	—	1
1-4, ...	1	2	3	—	—	—
5-15, ...	10	6	16	5	—	5
16-29, ...	18	22	40	30	17	47
30-39, ...	27	21	48	29	4	33
40-49, ...	46	29	75	16	9	25
50-59, ...	91	49	140	37	34	71
60-69, ...	65	64	129	70	52	122
70+, ...	53	59	112	21	22	43
	311	252	563	209	138	347

From the above table it will be noticed that 617 of the candidates, that is 67·8 per cent., were over 50 years of age, as compared with 71 per cent. during 1930. As in the two previous years also male applicants outnumbered female.

TABLE II.

SHOWING THE ALLOCATION OF THE APPLICANTS EXAMINED DURING 1931 AT THE CERTIFYING CLINIC AMONG THE LOCAL AUTHORITIES COMPOSING THE JOINT-COMMITTEE FOR THE BLIND FOR GLASGOW AND THE SOUTH-WEST OF SCOTLAND.

Certified.				Rejected.		
	Males.	Females.	Total.	Males.	Females.	Total.
Glasgow, ...	164	126	290	108	71	179
Airdrie, ...	4	2	6	2	5	7
Coatbridge, ...	9	4	13	14	10	24
Hamilton, ...	7	3	10	5	2	7
Motherwell and Wishaw, ...	6	7	13	7	7	14
Rutherglen, ...	1	—	1	—	1	1
Other Lanarkshire, ...	48	24	72	25	11	36
Greenock, ...	12	14	26	12	6	18
Paisley, ...	4	6	10	4	1	5
Port-Glasgow, ...	1	2	3	—	1	1
Other Renfrewshire, ...	4	3	7	1	2	3
Dumbarton, ...	2	4	6	1	—	1
Clydebank, ...	5	3	8	—	1	1
Other Dumbartonshire, ...	24	34	58	8	11	19
Falkirk, ...	1	2	3	—	—	—
Stirling, ...	—	3	3	—	—	—
Other Stirlingshire, ...	1	2	3	4	2	6
Ayr, ...	5	—	5	4	2	6
Kilmarnock, ...	2	2	4	3	—	3
Other Ayrshire, ...	7	5	12	4	1	5
Argyll County, ...	2	1	3	3	1	4
Bute County, ...	1	—	1	—	1	1
Dumfries Burgh, ...	1	3	4	2	1	3
Not stated, ...	—	2	2	2	1	3
Total, ...	311	252	563	209	138	347

It will be observed that 469, or 51 per cent. of the applicants examined resided in Glasgow. In 1929, 48 per cent. of the applicants lived in Glasgow, while in 1930 the proportion rose to 65 per cent.

Re-examinations.—In 1931, 147 cases were re-examined, compared with 75 in 1930. Re-examinations may be done on the recommendation of the examining ophthalmologist to ascertain either the effect of treatment advised or the change after six months in a case which shows progressive deterioration. Also, many rejected applicants tend to renew their applications in order to become eligible for the benefits conferred under the Act. The alteration in the decision of the clinic as the result of re-examination was as follows:—

(a) Certified blind on first examination and decision unaltered on re-examination,	35
(b) Certified blind on first examination and decision reversed on re-examination,	6
(c) Certified not blind on first examination and decision unaltered on re-examination,	72
(d) Certified not blind on first examination and decision reversed on re-examination,	20
(e) Certified blind on second examination and decision unaltered on re-examination,	3
(f) Certified blind on second examination and decision reversed on re-examination,	1
(g) Certified not blind on second examination and decision unaltered on re-examination,	6
(h) Certified not blind on second examination and decision reversed on re-examination,	4
Total,	<u>147</u>

Serological Tests for Syphilis.—Of the cases examined at the clinic, specimens of blood were submitted to the Kahn Test in 449 instances, and of these 41, or 9.1 per cent., were reported positive. In 1929 the percentage of specimens giving positive results was 12.5, and in 1930, 11.5.

Causes of Blindness.—Supplementary to the Joint Memorandum on Medical Certification and Standard of Blindness, to which reference has already been made, a model case sheet was issued which contained a list of the causes of blindness for use in the regional clinics. The causes of blindness of the 910 accepted cases during the year are shown below according to the list of causes recommended by the Department.

CAUSES OF BLINDNESS, 1931.

Congenital and Undetermined.

Congenital Anomalies,	29
Developmental Defects,	21
Tumour of Globe and Orbit,	1
Myopia,	87
Other Errors of Refraction,	—
Glaucoma Primary,	44
Cataract, Primary,	90
Other Primary Ocular Defects (Primary Detachment)	8
	<hr/> 280

Infectious and Toxic.

Ophthalmia Neonatorum,	17
Trachoma,	5
Local Septic Infection of Coats of Eye,	14
Other Local Septic Infections,	—
Gonorrhoea,	2
Syphilis, Congenital,	29
Syphilis, Acquired, including not definitely Congenital,	24
Specific Fevers (Smallpox, Measles, Scarlet, Diphtheria),	8
Meningitis (Non-tuberculous), including C.S.F.,	8
Tuberculosis,	8
Phlyctenular, Strumous and similar, not definitely tuberculous,	15
Septicæmia, Acute,	3
Septicæmia, Chronic; Auto-toxic, Focal Sepsis,	71
Other General Infections and Organismal Diseases,	6
	<hr/> 210

Traumatic and Chemical.

Birth Trauma,	—
Non-industrial Trauma,	9
Industrial Trauma,	28
War Trauma,	1
Trauma, Category not ascertainable,	—
Sympathetic Ophthalmia,	—
Chemico-toxic, Non-industrial (Tobacco), (Alcohol), (Lead),	1
	<hr/> 39

Systemic Disease.

Anæmia and Blood Diseases,	—
Diabetes,	1
Nephritis,	1
Pregnancy,	2
Vascular Diseases, including Cerebral Vascular Lesions,	19
Intracranial Neoplasm,	4
Other Diseases of Central Nervous System,	6
Functional Disturbances (Hysteric), (Malingering),	—
Other General Diseases,	1
	<hr/> 34

Total,

563

As in 1930 the largest number of blind cases are contained in the category, Congenital and Undetermined. The most important individual causes of blindness are myopia, cataract, glaucoma, chronic septicæmia, and venereal disease.

SECTION II.

VITAL STATISTICS.

The vital statistics are given in detail in respect of municipal wards, causes, sex, age, &c., in the Appendix Tables on pages 243 to 277, but a summary is here introduced of the principal numbers and rates for convenient comparison with those of the preceding years, based on the population returned at census for 1931.

SUMMARY.

				1929.	1930.	1931.
Population,	...	...	...	1,089,202	1,088,810	1,088,461
Acreage,	...	...	...	29,511	29,511	29,511
Persons per acre,	...	...	...	37	37	37
Number of Inhabited Houses,	...			254,594	259,401	261,179
Deaths—Number registered,	...			18,897	16,604	16,647
„ After correction for Transfers,				17,760	15,455	15,505
Births—Number registered,	...			23,301	23,888	23,575
„ After correction,	...	...		22,799	23,322	22,926
Death-rate per 1,000 living—						
All causes,	...	...	...	16.31	14.19	14.24
Birth-rate per 1,000 living,...	...			20.93	21.42	21.06
Deaths under One Year—After						
correction,	...	...	...	2,438	2,355	2,397
Deaths under One Year—Per						
1,000 births,	...	...	...	107	101	105

BIRTHS.

The number of births registered, corrected for outward transfers and including those transferred inward, was 22,926 in 1931, compared with 23,322 and 22,799 in 1930 and 1929 respectively—a decrease of 396 births as compared with the number for the preceding year. For the past five years, the birth-rate has remained below 22, a series of low birth-rates, which are now about 30 per cent. below the post-war rate of over 31, a figure maintained fairly steadily since the beginning of the present century until shortly before the war. The stationary character of the population would seem to indicate that the difference between the present birth-rate and death-rates of about seven per thousand is barely sufficient to make up for the loss through removal out-with the city and immigration abroad. This adverse balance has

been referred to before as occurring usually in the better-class residential districts of the city, of which the following are examples:—

WARD.	Death Rate per Million.	Birth Rate per million.	Excess of Death-Rate over Birth-Rate.
Park,	15,026	9,658	5,368
Kelvinside,	11,661	6,528	5,133
Langside,	11,704	9,550	2,154
Camphill,	12,148	10,511	1,637
Pollokshields,	10,510	9,696	814

The highest birth-rates were 30·3 in Mile-end, 29·3 in Hutchesontown, 28·5 in Cowcaddens, 27·8 in Dalmarnock; the lowest rate was 6·5 in Kelvinside, followed by 9·5 in Park and Langside. These and other municipal rates are given in Appendix Table V., which contains also the rates for the preceding year.

The following information from the Registrar-General's returns shows the birth-rates for Glasgow and Scotland since 1871:—

	Glasgow.	Scotland.		Glasgow.	Scotland.
1871-1880, ...	36·6	34·9	1924, ...	24·1	21·9
1881-1890, ...	36·5	32·4	1925, ...	24·6	21·3
1891-1900, ...	33·7	30·3	1926, ...	23·5	20·9
1901-1910, ...	31·2	28·4	1927, ...	22·4	19·8
1911-1920, ...	25·7	24·2	1928, ...	22·3	19·8
1921, ...	28·7	25·2	1929, ...	21·2	19·0
1922, ...	27·3	23·5	1930, ...	21·6	19·3
1923, ...	25·6	22·8	1931, ...	20·9	19·0

On the basis of local returns, the following comparison is made of the rates for several years in Glasgow and other towns:—

	1929.	1930.	1931.
Glasgow,	19·6	21·4	21·0
Edinburgh,	16·8	16·7	16·2
Dundee,	20·9	21·1	19·5
Aberdeen,	18·6	19·7	19·2
London,	15·8	11·6	12·4
Liverpool,	22·2	22·1	21·7
Manchester,	16·9	16·6	16·0
Birmingham,	17·1	17·7	16·9

ILLEGITIMATE BIRTHS.

During the year there were 1,422 births registered as illegitimate, which is equal to 6·2 per cent. of the total births, as compared with 6·5 per cent. in 1930. Most of the wards are around the average for the city, as is shown in Appendix Table V.

A more accurate comparison of the legitimate and illegitimate birth-rates is obtained when the calculation is based on the number of females of child-bearing ages; the former on married women of 15 to 44 years of age, and the latter on the unmarried women

and widows of the same ages. This is given in the following table:—

GLASGOW.—BIRTH-RATES, DISTINGUISHING LEGITIMATE AND ILLEGITIMATE IN CERTAIN YEARS FROM 1871.

(Based on figures of Registrar-General).

Year.	Number of Legitimate Births.	Rate per 1,000		Number of Illegitimate Births.	Rate per 1,000 Unmarried Women and Widows 15-44 years.
		Married Women	15-44 years.		
1871	17,118	298		1,749	27
1881	17,605	293		1,501	22
1891	18,304	283		1,553	21
1901	22,676	260		1,530	14
1911	19,966	229		1,603	14
1921	27,790	238		1,922	13
1930	21,801	177		1,526	10
1931	21,504	176		1,427	10

It is interesting to note that comparing the rates of 1931 with those of the pre-war year, 1911, both the legitimate and illegitimate birth-rates have fallen in exactly the same ratio, namely, 77 per cent.

MARRIAGES.

There were 9,263 marriages in 1931, compared with 9,372 in 1930. These numbers represent rates of 8·4 and 8·7 per thousand of the population respectively. The reduction is probably due to the present industrial depression, the rate for the year 1926, when there was a general dislocation of industry, being even lower than the rate for the past year. Another factor which has probably affected the marriage rate during the past ten years, is the reduction, through war casualties, of the number of men of marriageable age. The housing shortage now exerts little or no influence, although it did undoubtedly tend to delay marriages in the early post-war years. The following table shows the marriages per thousand of the population since 1871.

GLASGOW.—MARRIAGES PER 1,000 PERSONS LIVING.

1871-1880,	9·1	1924,	8·4
1881-1890,	9·3	1925,	8·5
1891-1900,	9·4	1926,	8·3
1901-1910,	8·8	1927,	8·5
1911-1920,	9·7	1928,	8·7
1921,	10·7	1929,	8·5
1922,	9·1	1930,	8·7
1923,	9·6	1931,	8·4

DEATHS.

The total number of deaths registered during the year was 16,647, which becomes 15,505 after adjustment for inward and outward transfers. The death-rate is thus 14·2 per thousand of the population which is the same as the rate for the preceding year. As has been mentioned above, the death-rate has remained remarkably uniform

since the war, the highest rate being 16.6 in 1922, and the lowest 13.8 in 1923, and during the past six or seven years it has only varied between 14.2 and 14.6, the exception being 1929, when there was a very heavy prevalence of influenzal pneumonia.

Quarterly Death-rates.—The following table of quarterly death-rates shows the considerable variation which sometimes takes place in the seasonal mortality. The first quarter is usually the heaviest, because of the prevalence of pneumonia in epidemic form or as a complication of other diseases, mainly measles and whooping-cough. The highest quarterly rate in 1931, *i.e.*, 19.4, occurred in the first three months of the year, when pneumonia and whooping-cough were prevalent. Although both measles and scarlet fever were exceptionally prevalent in the last quarter, the death-rate from these causes was not heavy, probably owing to the mildness of the weather at that time.

	1929.	1930.	1931.
1st Quarter,	28.4 { Pneumonia and Influenza prevalent.	18.4 { Measles prevalent.	19.4 { Pneumonia and Whooping Cough prevalent.
2nd „	14.7	15.1	15.0
3rd „	11.9	12.0	11.8
4th „	14.3	15.3 { Scarlet Fever and Pneumonia prevalent. December Fogs.	14.7 { Scarlet Fever and Measles prevalent.

Ward Death-rates.—The death-rates in the various municipal wards have in recent years tended to become more uniform. There are no excessive rates; indeed, during 1930 and in 1931 there is no ward with a rate of 20 per thousand of the population. The nearest to that figure is 19.2 in Exchange. The next highest rate was 18.0 in Cowcaddens, followed by 17.9 in Calton and 17.3 in Gorbals. The lowest rate was 9.9 in Cathcart, followed by 10.4 in Whiteinch, while a rate of under 12 was recorded in Pollokshields.

According to the Registrar-General's returns, the rates for Glasgow since 1881 have been as follows:—

GLASGOW.—ALL CAUSES—DEATH-RATE PER 1,000 LIVING.

1881-1890,	24.22	1924,	16.10
1891-1900,	21.53	1925,	14.83
1901-1910,	19.56	1926,	15.09
1911-1920,	16.36	1927,	14.63
1921,	15.10	1928,	14.80
1922,	17.20	1929,	16.53
1923,	14.28	1930,	14.31
		1931,	14.13

The following is a comparison of death-rates based on local returns of several large towns in Scotland and England:—

GLASGOW AND SEVERAL TOWNS—DEATH-RATE PER 1,000 LIVING.

	1928	1929	1930	1931
Glasgow,	14·4	16·3	14·2	14·2
Edinburgh,	13·7	14·8	13·8	12·9
Dundee,	15·1	16·0	16·0	13·9
Aberdeen,	14·0	14·5	12·4	13·9
London,	12·1	14·2	11·6	12·4
Liverpool,	13·2	15·5	13·2	14·3
Manchester,	12·9	15·3	12·7	13·9
Birmingham,	10·9	13·5	10·8	11·7

Transfer Deaths.—The deaths on which the above rates for Glasgow are calculated include those of persons formerly resident in Glasgow, but dying in institutions or elsewhere outwith the City. On the other hand, those dying within, but with home addresses outside, are excluded. The “inward transfers” numbered 574 during 1931, compared with 564 and 575 for the two preceding years, while the “outward transfers” numbered 1,716, compared with 1,713 and 1,712. The causes of deaths in both these groups are given in Appendix Table No. VII.

CLASSIFICATION OF DEATHS.

The international classification of causes of death has been followed in Glasgow for many years. During 1931, a new revised list was issued, and the new “short list” has been followed in the compilation of the various tables of deaths, which appear in the Appendix to this Report. In order to preserve local comparisons from year to year, the short classification list is amplified in certain respects. For instance, typhus fever, smallpox, erysipelas, rheumatic fever, meningitis (non-tubercular), and other nervous diseases have been separated out from “other defined causes” (No. 35 on the list). Non-pulmonary tubercular diseases have been split into three groups tubercular meningitis, abdominal tuberculosis, and other forms, in order to show the trend of these important sub-groups separately. Arterio-sclerosis is shown in the local tables, in addition to heart disease and aneurysm, which appear in the short list.

Causes of death now appearing in the short list for the first time are syphilis, general paralysis of the insane, aneurysm, other diseases of the liver, other digestive diseases and senility. There are thus 36 groups in the short list of classification, which is amplified in the Appendix Tables by the nine sub-causes given above.

Again, where certain important causes of death should receive special consideration, such as cancer and maternal deaths, the detailed classification is given in the text of the report. For the purposes of comparison, the deaths have been re-classified and new rates calculated.

It is clear that very decided advances have been made towards accuracy and uniformity of death classification. It will now be possible to compare local and international statistics of causes of death with less ambiguity than has hitherto prevailed.

The principal causes of death are summarised as follows:—

SUMMARY OF DEATH-RATES PER MILLION FROM PRINCIPAL CAUSES.

	1929.	1930.	1931.
General Diseases—			
(a) Infectious,	901	1,009	1,412
(b) Tuberculous—			
(1) Phthisis,	941	805	865
(2) Others,	303	337	318
(c) Malignant (cancer, &c.),	1,356	1,320	1,393
Diseases of the nervous system,	1,574	1,436	1,390
Diseases of the circulatory system,	2,631	2,405	2,517
Diseases of respiration, ...	3,360	2,411	2,025
Congenital defects and malforma- tions (including premature birth),	770	739	840
Violence	618	663	600
All other causes,	3,852	3,069	2,885
All causes,	16,306	14,194	14,245

The mortality from infectious diseases was again heavier. The rate for 1931 was 1,412 per million of the population, compared with 1,009 and 901 for 1930 and 1929 respectively. This higher rate was caused by the prevalence of measles and whooping-cough during the year. The mortality from the former, 382 per million of the population, was more than fifty per cent. in excess of the rate for the preceding year, while deaths from whooping-cough were more than double, the respective rates being 426 and 207.

As will be explained later, there was an exceptionally heavy prevalence of scarlet fever throughout the city, and 74 deaths occurred, representing a rate of 68, which compares with 38 for the preceding year. The mortality from diphtheria was lower, but the death-rate from influenza was higher, 190 against 147. The mortality from pulmonary tuberculosis, 865, has increased from the low record rate of 805, which occurred in 1930. The death-rate from non-pulmonary forms of the disease was lower, 318 against 337. The mortality from cancer is referred to in detail below, while tuberculosis is dealt with in Section VI.

The death-rate from diseases of the nervous system is again lower at 1,390, compared with 1,436 in 1930. Deaths from diseases of the circulatory system are more numerous, the rate for this group being 112 higher at 2,517, because of a slight increase in the number of deaths from heart disease, and a higher rate from arterio-sclerosis.

Diseases of the respiratory system were considerably less fatal the rate being 2,025, compared with 2,411 in 1930, and 3,360 in 1929, in which latter year there was a heavy prevalence of influenzal

pneumonia. The reduced rate in 1931 was due to lower mortality from both bronchitis and pneumonia.

There was a considerable increase in the death-rate from congenital defects and malformations (including premature birth), the rate in 1931 being 840, compared with 739 and 770 in 1930 and 1929 respectively. Altogether there were 914 deaths in this group, equivalent to a rate of 40 per thousand births. Details of each of these causes in relation to age and sex are given in Appendix Tables XIII. and XIV.

Deaths from violence are dealt with below. Particulars of the causes of death, with a comparison of the rates for the preceding years, will be found in Appendix Table VIII.

AGE AND SEX DISTRIBUTION OF DEATHS.

The age and sex distribution of each cause is given in Appendix Table IX. Deaths among the infectious diseases, in both sexes, occurred almost wholly under ten years of age. Although there were more female deaths from cerebro-spinal fever, 67 against 62, the numbers occurring in the first year of life were 17 females and 35 males, a disparity which occurs from year to year.

Tuberculous diseases were again more fatal to males, 503 against 438 female deaths, the male deaths being considerably in excess at each age period over 35 years. There were slightly more deaths among males from tuberculous meningitis, but the reverse was the case for abdominal forms of the disease. Deaths from syphilis were recorded for 27 males and 12 females, 7 and 4 respectively occurring in the first year of life. General paralysis of the insane, also now given in the short list, was responsible for 55 deaths of males and 16 females, all but one in each sex occurring at 30 years upwards.

Owing to the importance now attached to cancer, because of the increasing death-rate a detailed table has been inserted during the past four or five years. Effect has been given in the following table to the altered classification introduced in 1931, which has also been applied to previous years in order to afford a proper comparison.

DEATHS FROM CANCER.

Site of Lesion.	Males.									Total				
	- 15	- 25	- 35	- 45	- 55	- 65	- 75	75+		1931	1930	1929	1928	1927
Buccal Cavity, ...	—	—	—	1	7	36	30	5	79	61	57	75	55	
Pharynx, Oesophagus, Stomach, Liver, and Adnexa, ...	—	—	5	18	40	91	92	26	272	262	283	254	280	
Peritoneum, Intestines, and Rectum, ...	1	1	3	3	22	71	72	23	196	164	189	193	150	
Genital Organs, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	
Breast, ...	—	—	—	—	—	—	—	—	—	2	—	—	2	1
Skin, ...	—	—	—	—	—	5	10	4	19	15	11	14	13	
Other or Unspecified Organs, ...	—	4	7	12	34	59	51	15	182	167	169	154	146	
Totals, ...	1	5	15	34	103	262	255	73	748	671	709	692	645	

Site of Lesion.	Females.									Total				
	-15	-25	-35	-45	-55	-65	-75	75+		1931	1930	1929	1928	1927
Buccal Cavity, ...	—	—	—	1	3	2	1	—		7	7	6	9	5
Pharynx, Oesophagus, Stomach, Liver, and Adnexa, ...	—	—	2	11	29	79	76	37	234	243	205	232	267	
Peritoneum, Intestines, and Rectum, ...	—	1	3	7	23	47	60	31	172	164	151	145	181	
Female Genital Organs, Breast, ...	—	1	3	17	40	41	31	10	143	132	168	140	168	
Skin, ...	—	—	2	13	26	37	20	13	112	123	121	112	106	
Other or Unspecified Organs, ...	2	—	2	3	20	32	25	11	95	88	106	89	114	
Totals, ...	2	3	13	52	142	240	214	102	768	766	768	738	857	

There was again a high mortality among males for cancer of the buccal cavity, the number of deaths, 79, being more than eleven times greater than the corresponding number for females. Cancer of the pharynx, oesophagus, stomach, &c., was also more fatal among males and the same observation applies to disease of the peritoneum, intestines, and rectum. For all forms of the disease, cancer is more fatal among females, due to affections of the female genital organs and breast, although male deaths are in excess for other and unspecified organs. The mortality from cancer, which has been increasing over a long period of years, because of the larger proportion of the population surviving at older ages, better diagnosis, &c., would seem now to be becoming more stabilised, although the number of deaths of males in 1931, at 748, is 77 in excess of those recorded in 1930. This increase, as will be seen in the above table, has been general.

The highest death-rates from cancer, occurred in the good residential districts, where the proportion of people of older ages is greatest. In 1931 the highest ward rate was 1,937 per million in Kelvinside, followed by 1,848 in Camphill and 1,845 in Blythswood. The lowest rates were 863 in Maryhill, 926 in Exchange, and 956 in Shettleston and Tolleross.

Almost double the number of deaths from rheumatic fever occurred among females, who were also twice as heavily affected by diabetes, 84 deaths against 42, the greatest number of deaths occurring at ages between 55 and 75.

The excess of male deaths from cerebral hæmorrhage, etc., 551 against 460, occurred largely at ages over 75, so that a calculated death-rate would probably indicate that the chances of death from these causes are about equal for both sexes. The same observation applies to heart disease, but in this case, the mortality is more than twice as heavy, 1,098 and 1,102 deaths for males and females respectively. Aneurysm is more than three times as fatal to males, and arterio-sclerosis is also more frequent among that sex, with 218 deaths against 185, all at older ages.

Of 234 male deaths from bronchitis, 34 were under five years of age, the respective numbers for females being 261 and 33. Pneumonia

is the most fatal of all diseases among children under five years of age, there being 482 deaths of male children at that age, out of a total of 952; the respective numbers for females were 294 and 581. The male deaths exceed the females at every age, except those over 75 years. Males, mostly at older ages, are more subject to peptic ulcer, 86 against 30, while in the first years of life, male deaths also considerably exceeded females from diarrhoea, etc. Appendicitis was more fatal among females, while males, with 21 deaths from cirrhosis, were 50 per cent. in excess of females, but female deaths from other diseases are more numerous.

The mortality among males from acute and chronic nephritis was slightly in excess of females, 186 against 163, while females, owing to the greater number surviving to older ages, had a mortality from senility of more than twice that of the males. The deaths from violence, &c., were twice as common among males, as many of the latter are caused by accidents, mostly due to motor traffic. The table inserted in the Report for last year is here brought up to date.

GLASGOW—DEATHS FROM "SUICIDE AND OTHER VIOLENCE."

Year.	MALES.					FEMALES.					Both Sexes.
	-5 years.	-15 years.	-45 years.	+45 years.	Total.	-5 years.	-15 years.	-45 years.	+45 years.	Total.	
1927, ...	62	52	155	225	494	42	23	44	108	217	711
1928, ...	52	44	126	204	426	44	26	62	105	237	663
1929, ...	48	55	153	210	466	38	22	38	109	207	673
1930, ...	45	66	165	237	513	33	22	49	105	209	722
1931, ...	37	59	133	205	434	28	24	47	120	219	653

Deaths in Hospitals, Nursing Homes, and other Institutions.—Details of the deaths in Glasgow institutions are given in Appendix Table X., which shows that more than half (50·8 per cent.) of the total deaths registered occurred in such institutions. The proportion for the previous year was 48·4 per cent. Of the total 7,883 deaths, 2,909 occurred in local authority general hospitals and poorhouses, 2095 in fever hospitals and sanatoria, and 289 in mental hospitals; altogether more than two-thirds of the total deaths in institutions. In voluntary hospitals and infirmaries 2,368 deaths occurred, and 222 in nursing homes. The largest number of deaths occurred from pneumonia 964, followed by heart disease 958, cancer, &c., 658, and 571 from pulmonary tuberculosis.

Uncertified Deaths.—Uncertified deaths during 1931 numbered 14, compared with 10 during 1930. Four of these were infants under one year of age, two were foundlings, and seven were inward transferred deaths.

SECTION III.

MATERNITY AND CHILD WELFARE.

INFANT MORTALITY.

The infant mortality rate was slightly higher than that for 1930, and still remains at a figure over 100 per 1,000 births. It has only once dropped below this level, when it was 89 in the year 1923, due to certain very favourable circumstances. A special inquiry has been made into the component parts of this rate in comparison with former years, and with the general experience of other larger towns. It is apparent that much the most prominent group of causes in Glasgow are the respiratory diseases, alone or occurring as complications of measles and whooping-cough. During last year, these were considerably more numerous than usual. The actual rate of 105 is slightly below the average of 106 for the past ten years. The decline over the past ten years is given in Appendix Table XXIV.

The number of deaths of infants under one year during 1931 was 2,397, compared with 2,355 during the preceding year. The deaths under one year in each Municipal Ward of the City during 1931, with the relative rates per 1,000 births, are contained in Appendix Table XII., with a comparison of the rates during the two preceding years.

The following tables show (1) the infant death-rates in Glasgow since 1891; (2) the rates in other large towns; and (3) the death-rates among legitimate and illegitimate children per 1,000 births in each group.

GLASGOW—INFANT DEATH-RATE DURING SEVERAL PERIODS.

			Per 1,000.				Per 1,000.
Average of 10 years,	1891-1900,	149	1926, ...	...	104		
„	10 „	1901-1910,	135	1927, ...	...	107	
„	5 „	1911-1915,	134	1928, ...	...	107	
„	5 „	1916-1920,	115	1929, ...	...	107	
„	5 „	1921-1925,	107	1930, ...	...	101	
				1931, ...	...	105	

COMPARISON WITH SEVERAL LARGE TOWNS.

				1929.	1930.	1931.
GLASGOW,	...	...	...	107	101	105
Edinburgh,	...	...	...	80	82	69
Dundee,	...	...	...	102	113	92
Aberdeen,	...	...	...	95	80	90
London,	...	...	...	71	59	65
Liverpool,	...	...	...	96	82	93
Manchester,	...	...	...	97	79	84
Birmingham,	...	...	...	79	60	71

Illegitimate Mortality.—The mortality of illegitimate children compared with others is shown in the following table, since the beginning of the present century. It will be observed that the marked fall in the rate since then has not been continued, as a rise from 146 to 173 last year has taken place. This rate is an index of industrial conditions.

GLASGOW.—DEATH-RATE PER 1,000 LEGITIMATE AND
ILLEGITIMATE BIRTHS.

	Legitimate.	Illegitimate.		Legitimate.	Illegitimate.
1899-1900, ...	144	286	1926, ...	101	157
1901-1910, ...	126	257	1927, ...	105	147
1911-1915, ...	127	217	1928, ...	102	176
1916-1920, ...	110	175	1929, ...	103	165
1921-1925, ...	103	169	1930, ...	91	146
			1931, ...	99	173

There were 1,400 deaths of male infants and 997 deaths of female children during the year, compared with 1,337 and 1,018 respectively for the previous year. The infant mortality rate for males was 120 and for females 88, while the ratio of male deaths to 100 female deaths was 140, compared with 131 for 1930.

Causes of Infant Mortality.—The causes of infant deaths according to sexes and for each month during the first year of life are given in Appendix Tables XIII. and XIV. About 32 per cent. of the male deaths and 38 per cent. of the female deaths occurred in the first month of life. Nearly half of these early deaths are due to premature births.

As is shown in the summary of the totals of the principal groups of causes of infant death in Tables XIII. and XIV., which is given below, with a comparison for previous years since 1916, the death-rate from causes in the immaturity group has shown little reduction, the rate varying in the case of males from 36 to 45 and of females from 27 to 37.

		Rate per 1,000 Births.												
CAUSES OF DEATH.		1916-20	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	
MALES—														
I.	Immaturity,	46	41	40	36	42	41	44	39	45	45	40	42	
II.	Diseases of Respiratory System,	27	22	43	20	39	30	29	36	28	35	33	26	
III.	Diseases of Digestive System,	18	21	12	12	14	15	15	17	17	14	14	17	
IV.	Diseases of Nervous System,	8	7	7	7	6	8	8	6	7	6	5	5	
V.	Tuberculous Diseases, ...	3	3	2	3	3	2	2	1	2	1	2	2	
VI.	Infectious Diseases, ...	11	14	17	13	17	13	11	14	15	9	12	21	
VII.	Suffocation,	—	—	1	—	—	—	—	1	—	—	—	—	
VIII.	All other causes,	10	9	12	8	9	9	9	5	7	8	6	7	
All causes,		123	117	134	99	130	118	118	119	120	118	112	120	
FEMALES—														
I.	Immaturity,	36	36	34	31	31	27	29	37	33	34	33	36	
II.	Diseases of Respiratory System,	21	16	29	16	29	20	23	24	23	27	25	15	
III.	Diseases of Digestive System,	14	15	9	8	11	10	13	10	11	10	10	11	
IV.	Diseases of Nervous System,	6	5	5	4	5	4	4	4	4	5	3	3	
V.	Tuberculous Diseases, ...	3	2	2	2	1	1	1	1	2	2	2	1	
VI.	Infectious Diseases, ...	11	12	16	12	17	14	10	14	14	10	11	17	
VII.	Suffocation,	—	—	1	—	1	1	1	—	1	—	—	—	
VIII.	All other causes,	9	6	9	6	9	6	7	5	5	7	5	5	
All causes,		100	92	105	79	104	83	88	95	93	95	89	88	
Ratio—Males to 100 Females,		123	127	127	125	125	142	134	125	129	122	131	140	

The above table indicates that the mortality caused by the immaturity group of diseases which occur in the early days of infancy, approaches the higher levels recorded during the past ten years, the rate for males being 42 and for females 36, compared with respective mortalities of 40 and 36 for the preceding year. There were 73 male deaths classified as congenital malformations alone in 1931, against 58 in 1930. The females numbered 51, compared with 54 in the previous year.

Respiratory diseases are, by far, the most potent cause of death in the first year of life. In 1931, the mortality rate due to this group of diseases shows some improvement, as the rates of 26 and 15 for males and females respectively are decidedly below the figures of 33 and 25 for the preceding year. On the other hand the deaths from infectious diseases were considerably more numerous, because of the prevalence of whooping-cough, especially in the early part of the year, and an epidemic of measles in the autumn. Thus the rates for infectious diseases were 21 and 17 for males and females respectively, against 12 and 11 in 1930. The combined rates for respiratory and infectious diseases were 47 for males and 32 for females, against 45 and 36 in 1930, in explanation for which it may be remarked that under the rules of classification there has occurred a transference of deaths to infectious diseases, which would have been attributed to respiratory diseases, had measles and whooping-cough not been prevalent. The mortalities from diseases of the nervous system and tuberculous diseases were somewhat similar to the corresponding rates in 1930.

The sex ratio of male to 100 female deaths was 140, which is higher than that of the past ten years, with the exception of 1925 when it was 142.

Infant Mortality in Wards.—The highest ward mortality (150) was again registered in Exchange, a district in the centre of the city, in which most of the resident population are of the poorer classes, and where child life is especially subject to epidemics of measles and whooping-cough, both of which were prevalent. The population is not very large, and the number of births relatively few. The same observations apply to Blythswood, although the infant mortality there, 119, is lower than it has been since 1925. Calton Ward had a rate of 140, Townhead 129, Dalmarnock and Govan each had a ratio of 127 and in all of these respiratory diseases predominated. Among low rates registered were 34 in both Kelvinside and Pollokshields, which contain a large proportion of the residential population of the city, followed by Cathcart with 46, and 61 in Whiteinch.

CHILD WELFARE SCHEME.

The various units of the scheme as the child welfare movements develop have been described from year to year in this part of the Report. During 1931, the new centre erected on the slum clearance site in Richard Street, Anderston, became available, and the con-

sultations which had since 1906 been held in the Queen Margaret Settlement at 77 Port Street, were discontinued. One of the few remaining infant clinics carried on in premises which are not suitable for the purpose is situated in Garngad, and this, it is hoped, will be replaced before long, by the erection of a combined child welfare and school clinic in that district. With the transfer of the administration of the medical inspection of school children to the Health Department in accordance with the scheme of re-organisation of Health Services, described in the Report for last year, it has been possible to give effect to some co-ordination of the services with child welfare work. This is described briefly in the following memorandum by Dr. G. Arbuckle Brown, Deputy Medical Officer of Health.

THE UNIFICATION AND CO-ORDINATION OF THE MATERNITY, CHILD WELFARE AND EDUCATION HEALTH SERVICES, GLASGOW.

In order that the position may be clear, it will be necessary, in explaining the need for unification and co-ordination of the Education Health Service with the Child Welfare Service, to consider very briefly the history of these two services.

HISTORICAL.

The Education (Scotland) Act, 1908, provided the legal powers for instituting medical inspection of school children throughout Scotland. Towards the end of 1909, well organised schemes of inspection were in operation in practically every urban and rural district. In one School Board area—Govan Parish—medical inspection had already been instituted towards the end of 1907, and was fully organised when the provisions of the 1908 Act came into operation. With this exception the systematic inspection of school children was new to Scotland. Every development which has taken place in the school medical service has been provided for by Education Acts. These Acts were administered by *ad hoc* authorities—the School Boards up to 1918, when the Education (Scotland) Act of that year replaced these and instituted Education Authorities and made certain territorial rearrangements amalgamating the smaller areas and forming larger administrative units for the new bodies. Except in regard to contagious diseases and sanitary conditions, these *ad hoc* authorities had no connection with or responsibility to the Town and County Councils of the areas in which they were situated, and, indeed, in many instances the education and the health administrative areas were not coterminous. The development of medical inspection and treatment was, therefore, independent of the health administration, whether in town or county, and it consequently evolved mainly along the lines of educational requirements and practice.

Ultimately, in addition to the usual systematic medical inspection in schools, the *school medical service* provided a well organised school clinic system for the treatment of minor ailments and many of the more serious diseases with an efficient method of control and super-

vision. The system now provides for:—Specialists' services for orthopædic treatment, surgical and other; X-ray treatment of ring-worm of the head and skin diseases; ultra-violet ray treatment; special schools for physically and mentally defective children; blind children; sight-saving classes; schools and classes for deaf and partially deaf children; examination and certification of blind persons under the Blind Persons Act, 1920; operations for the removal of enlarged tonsils and adenoids; three residential holiday schools: one open-air hospital school on the Ayrshire coast; a liaison with the Royal Hospital for Sick Children for orthopædic operations, and many other minor activities.

On the other hand, the Maternity and Child Welfare Service developed under the ægis of the health authorities after the coming into operation of the original Notification of Births Act, 1907, and the later amending Acts and Regulations. This service, having no official connection with the educational health service in the schools, developed along lines more or less parallel to the school service, but without organic administrative co-ordination therewith.

The Maternity and Child Welfare Service provides, in addition to the usual ante-natal, toddlers' and child consultations, several homes for children and mothers. Three of those are country homes well on the outskirts of the city, to which young children under five years are admitted for varying periods. Not only is there a great improvement in general health, but also improvement in personal habits and general behaviour, apparently in response to the natural healthy surroundings.

A small hospital on the verge of the city provides accommodation for eight mothers and their infants. The mothers are admitted as soon as possible after confinement. During their residence and the enjoyment of their much-needed holiday, useful educational work is done by instruction in infant hygiene and in many other directions. If gynæcological treatment of any kind is required, the mothers are advised and suitable arrangements are made for admission to the appropriate hospital.

CO-ORDINATION UNDER THE LOCAL GOVERNMENT ACT.

The Local Government (Scotland) Act of 1929 transferred all the functions of the education authorities, including medical inspection and treatment, and also the functions of the Parish Councils, to the Town and County Councils. In Glasgow they were transferred to the Corporation of the city.

This transference of Education Authority functions made practicable the unified administration of the Maternity and Child Welfare and Education Health Services, and made feasible co-ordination with all the other medical services of the city. The Corporation's scheme of administrative arrangements made under the powers of the Act transferred the whole of the medical services of the city to the Public Health Department under the administrative control of the Medical Officer of Health for the city. The work of school medical inspection

and treatment, together with that of maternity and child welfare, was placed as a unified administrative service under the direction of a Deputy Medical Officer of Health.

So far, no fundamental reorganisation of the methods, time-tables, &c., of the services has been attempted. The whole of the reconstruction has been effected by dovetailing the services with one another and with the other medical health services of the city. In this way the minimum amount of disturbance has been caused and many useful extensions, providing improved facilities for treatment, have been effected without addition to the medical or clerical staff. The steps taken to effect co-ordination have all been of an immediately practical nature and may be summarised as follows:—

The school treatment clinics are now available for the treatment of minor ailments referred from the child welfare centres; certain school clinics have been housed in child welfare buildings.

In one area the provision of a combined school and child welfare clinic, with all accessory branches of treatment common to both, such as dental work, U.V.R. treatment, orthopædic treatment, and so on, has been planned and approved by the Corporation. This combined clinic will provide in the near future for the dental treatment of expectant mothers and others, and provision has been made so that by extension other medical services can be accommodated. This building will replace several existing separate clinics. Two other combined clinics have been planned on similar lines to serve areas of the city which are in urgent need of such accommodation and services.

Tonsils and Adenoids.—Prior to the rearrangement, the school health service had a small hospital for the treatment of tonsils and adenoids. This was an extremely useful branch of the work. The hospital could only be staffed during week days and there was no resident staff. This has now been replaced by setting apart two wards in one of the large Corporation hospitals with all the advantages of a permanent resident staff. The arrangement has worked very efficiently and with great advantage to the children because of the additional facilities for all forms of treatment in the event of any complication arising.

Orthopædic Treatment.—The school health service had an orthopædic clinic with a staff of three medical gymnasts. Treatment by exercises, electricity and massage was provided. There was also a liaison with the Royal Hospital for Sick Children, so that operation cases were provided for by reference from the school clinic.

The whole scheme of orthopædic treatment has now been re-organised so that children can be treated for the earliest stages of functional deformity by class exercises given by the physical education staff; the intermediate cases by more advanced orthopædic exercises, massage and electrical treatment at the orthopædic clinic; and more serious cases by operative treatment at Mearns Kirk Hospital—a large

open-air Children's Hospital belonging to the Health Department. It is not proposed to make any change in the liaison arrangement with the Royal Hospital for Sick Children.

Emergency Operations.—By co-ordination with another of the Corporation general hospitals, children requiring immediate operation for any condition—whether urgent or chronic—can be immediately admitted and treated surgically or medically, without the delay, so often encountered in former days. Under this arrangement, acute and more especially chronic mastoid cases have been provided for with the best possible results to the children.

Ultra-Violet Ray Therapy.—The school service had also one large central clinic for ultra-violet radiation. Now the child welfare centres are available for school children, so that there are three centres more conveniently situated and capable of dealing with larger numbers.

Blind Children.—A joint clinic for blind children and adults has been established, so that in future all blind children will come within the purview of the Board of Ophthalmologists at this clinic at the earliest possible age and will be kept under supervision throughout the whole of their school life and afterwards, *i.e.*, when they reach the age of 16 years and come within the provisions of the Blind Persons Act, 1920. This supervision is additional to the medical supervision of the children in the schools for the blind, which has existed for many years, and which will be continued. Similarly, any child attending the "Sight-Saving Classes" who is likely to become blind, will be referred to the same clinic for special examination and certification. This special provision is also additional to the routine supervision by the Education Health Service ophthalmologist.

The Mental Defective.—There is now a unified clinic service for the examination, and classification of mental and feeble-minded children replacing the separate organisations which existed for the School service and the District Board of control.

Infectious Diseases.—The supervision of infectious diseases in the schools has always been a duty of the Public Health Services. Under the new arrangements definite and practical co-ordination has been established and the incidence of infectious disease in the schools is now much more closely supervised. Certain contagious diseases—such as scabies—are dealt with by similar arrangements, so that while the school treatment clinics deal with the school and pre-school children, the divisional sanitary officers deal with the adults and the disinfection of the house and its contents.

Dispensaries.—A central drug store has been established from which drugs, dressings and medical apparatus for all hospitals and other institutions and for school and child welfare clinics are distributed.

The former Poor Law dispensaries are now administered by the Public Health Department and utilised for the dispensing of special

prescriptions for the school and child welfare services, whereas formerly there was available only one centrally situated depot, which often entailed the travelling of long distances in order to obtain special prescriptions or medicines.

A Central Register.—The former Parish Council and the School Welfare Department of the Education Authority had each a separate staff for investigating the financial circumstances of the children requiring treatment. Now, the Public Assistance Department undertakes all such investigations and maintains a central register for the information of all departments of the Corporation.

A new booklet entitled “Hints on the Management of Children,” was prepared by the Child Welfare staff and issued by the Committee on Health for distribution at the clinics and to the public generally at the price of one penny. It has proved most useful and has had a wide sale. During the three months ending December, 3,159 copies were sold. It contains detailed simple advice on ante-natal care, clothing, hygiene, common ailments, and feeding of mothers and children.

NOTIFICATION OF BIRTHS.

The number of notifications of births received during 1931 is shown in Appendix Table XV., compared with the corresponding figures for the two preceding years. As notifications include still-births, the notifications are always in excess of the number of births registered. Omissions to notify births in terms of the Act average around $2\frac{1}{2}$ per cent., but most of these are formally intimated after attention has been directed to the omission.

Nature of Attendance at Births.—The proportion of births medically attended fell from 48.6 per cent. in 1914 to 40.1 in 1925. In 1931 the proportion was 45.5.

Still-Births.—The number of still-births known to occur in Glasgow usually averages about 4 per cent. of the total births. During 1931 there were 1,003 still-births, equal to a rate of 4.2. Of the medically attended births there were 211 still-births among home cases, representing a rate of 3.5, and 414 in institutions, equal to a rate of 8.4. Together the rate indicated is 5.7. Among non-medically attended births there were 378, which is equivalent to a rate of 2.9.

WORK AT THE MATERNITY AND CHILD WELFARE CENTRES.

During the year a number of alterations on the weekly time-table of child welfare sessions were made, apart from the changes consequent on the transfer from the Queen Margaret Settlement to the new clinic in Richard Street, Anderston. Additional weekly ante-natal consultations were opened at Cowcaddens, Bridgeton, Maryhill

and Springburn centres, while further infant consultations were arranged at Springburn and Shettleston. The revised list of clinics is given below.

LIST OF MATERNITY AND CHILD WELFARE CLINICS.

	9 a.m.	1.30 p.m.
MONDAY,	1 Burgh Hall Street, Partick (Ante-natal). Church Hall, Garngad Hill. 106 Orr Street (1-5 years). Wellshot Road, Shettleston. 130 Adelphi Street, S. (-1 year). 2 Summerton Road, Govan (Ante-natal). Elder Park (Ante-natal). Richard Street (Ante-natal).	20 Cochrane St. (Ultra-Violet Ray). 1 Burgh Hall Street, Partick (-1 year). 60 Avenuepark Street. 106 Orr Street (-1 year). Wellshot Rd., Shettleston (Ante-natal). 130 Adelphi Street, S. (-1 year). 132 Weir Street. 2 Summerton Road, Govan (Ultra-Violet Ray). 614 Dobbie's Loan (Ante-natal).
TUESDAY,	Richard Street (1-5 years), Church Hall, Garngad Hill. Fernbank Street, Springburn. 60 Avenuepark Street. Wellshot Road, Shettleston. Pollokshaws Burgh Hall. 2 Summerton Road, Govan. 106 Orr Street (Ante-natal).	Richard Street (-1 year). 614 Dobbie's Loan (Ante-natal). 106 Orr Street. Wellshot Road, Shettleston. Adelphi Street (Ante-natal). Elder Park Centre (Ante-natal). 194 Fernbank Street, Springburn.
WEDNESDAY,	20 Cochrane St. (Ultra-Violet Ray). Richard Street (-1 year). 60 Avenuepark Street. 106 Orr Street (1-5 years). 130 Adelphi Street, S. (1-5 years). 132 Weir Street. 2 Summerton Road, Govan (Ultra-Violet Ray). Wellshot Road, Shettleston.	20 Cochrane Street. 1 Burgh Hall St., Partick (1-5 years). Fernbank St., Springburn (Ante-natal). 614 Dobbie's Loan (-1 year). 106 Orr Street (-1 year). 130 Adelphi Street, S. (Ante-natal). 132 Weir Street. 2 Summerton Road, Govan.
THURSDAY,	1 Burgh Hall St., Partick (-1 year). 614 Dobbie's Loan (1-5 years). 106 Orr Street (1-5 years). Wellshot Road, Shettleston. 130 Adelphi Street, S. (1-5 years). 132 Weir Street. Richard Street (-1 year). Fernbank Street, Springburn (Ante-natal).	1 Burgh Hall St., Partick (1-5 years). 60 Avenuepark Street (Ante-natal). 614 Dobbie's Loan (-1 year). 106 Orr Street (-1 year). Wellshot Road, Shettleston (Ante-natal). 130 Adelphi Street, S. (-1 year). 132 Weir Street. 2 Summerton Road, Govan (Ante-natal).
FRIDAY,	1 Burgh Hall Street, Partick (Ante-natal). Fernbank Street, Springburn. 614 Dobbie's Loan (1-5 years). 106 Orr Street (-1 year). Wellshot Road, Shettleston. 130 Adelphi Street, S. (1-5 years). 2 Summerton Road, Govan. 60 Avenuepark Street, (Ante-natal).	20 Cochrane St. (Ultra-violet Ray). 1 Burgh Hall St., Partick (-1 year). 614 Dobbie's Loan (-1 year). 106 Orr Street (Ante-natal). 2 Summerton Road, Govan (Ultra-Violet Ray). Elder Park Centre (-1 year).

Maternity Hospital Ante- and Post-natal Clinics—Daily, Monday to Friday, at 1.30 p.m.
 Saturday, 9.30 a.m. Vaccination is also done at 20 Cochrane Street on Tuesdays at 12.30 p.m.

The number of centres remains the same at 14, at which 78 consultations are held weekly, 19 of these being ante-natal clinics, 53 infant consultations, and 6 ultra-violet light treatment clinics.

The total number of attendances at the infant consultations during 1931 was 179,323, compared with 143,556 for the preceding year, an increase of 35,767, which is considerable, when it is remembered that the number of births in 1931 was 412 less than in the previous year. Of the total attendances, 12,108 were new infants, while 167,215 subsequent attendances were recorded. As the consultations held during the year number 2,835, the average attendance at each was almost 63, while the ratio of subsequent attendances to primary attendances was 14 to 1. Primary attendances at all the centres were greater in number than a year ago, with the exception of Port Street, Cowcaddens and Pollokshaws, where there were small reductions.

The following table gives the attendances at each Consultation Centre during the years 1930 and 1931:—

ATTENDANCES AT INFANT CONSULTATIONS, 1931.

	No. of Consulta- tions held.	Children -1 Year. No. of Attendances.		Children +1 Year. No. of Attendances.		Total No. of Attendances		1930 Total No. of Attendances.	
		Prim.	Sub.	Prim.	Sub.	Prim.	Sub.	Prim.	Sub.
Adelphi Street, ...	300	1,290	9,809	219	10,652	1,509	20,461	1,344	18,055
Cowcaddens, ...	254	782	6,532	281	8,028	1,063	14,560	1,092	13,215
Elderpark, ...	198	631	5,598	268	5,840	899	11,438	767	8,918
Garngad Hill, ...	101	434	3,289	147	5,056	581	8,345	527	6,125
Govan, ...	153	533	4,236	139	4,213	672	8,449	582	7,011
Orr Street, ...	404	1,670	16,424	310	11,863	1,980	28,287	1,651	20,957
Maryhill, ...	153	542	4,448	139	5,409	681	9,857	580	7,855
Partick, ...	250	690	5,854	247	6,991	937	12,845	807	9,772
Port Street, ...	120	350	2,830	114	2,865	464	5,695	520	5,566
Shettleston, ...	304	892	9,325	243	11,166	1,135	20,491	918	14,818
Weir Street, ...	255	554	5,356	169	6,798	723	12,154	638	9,183
Cochrane Street,	93	190	1,095	104	1,508	294	2,603	230	2,421
Springburn, ...	151	658	4,218	171	4,210	829	8,428	784	7,415
Pollokshaws, ...	52	97	720	41	813	138	1,533	173	1,632
Richard Street,*	47	142	974	61	1,095	203	2,069	—	—
<hr/>									
	2,835	9,455	80,708	2,653	86,547	12,108	167,215	10,613	132,943
		90,163		89,160		179,323		143,556	

*Clinic transferred from Port Street to Richard Street, 13th October, 1931.

The illnesses, &c., recorded on first attendance at the consultations are here summarised:—

INFANT CONSULTATIONS.—ILLNESSES, &C., RECORDED.

	1930.		1931.	
	-1 Year.	+1 Year.	-1 Year.	+1 Year.
Debility and Malnutrition (including Underweight), ...	375	184	527	170
Birth Debility,	312	—	225	5
Prematurity,	69	—	74	1
Marasmus,	6	1	3	—
Diseases of Digestive System, ...	6	—	7	3
Diseases of Respiratory System, ...	1	1	3	2
Measles,	—	—	—	—
Whooping-cough,	—	—	—	—
Rickets,	17	129	19	99
Others,	12	2	2	—
TOTAL,	798	317	860	280

SUPPLY OF MILK AND MEALS TO NECESSITOUS MOTHERS AND CHILDREN.

During the year supplies of milk continued to be given to expectant and nursing mothers, and to children up to five years of age, under the following general conditions:—(1) Regular attendance at a Child Welfare Centre; (2) when the case was necessitous; and (3) when a supply of milk was certified by the Medical Officer of the Centre to be required on the grounds of health.

Except where conditions of health required a more frequent attendance, infants are not expected to attend more frequently than once a fortnight, and toddlers once in six weeks.

While compliance with above general conditions is usually required, exception is made where a mother or child, on first attendance at an infant consultation, presents conditions of health which suggest that an immediate grant of milk may be desirable or necessary.

The following table summarises the applications and grants for the year 1930:—

	Applications Granted.		Applications Refused.	Total.
	Free.	At Reduced Price.		
Fresh Milk,	50,935	2,017	999	53,951
Dried Milk,	253	2	1	256
	51,188	2,019	1,000	54,207

These totals represent the number of individuals included in the applications. Grants, when made, are mainly for a period of six weeks at a time.

(a) *Fresh Milk*.—The following table further analyses the number of applications for fresh milk granted during the year:—

ORIGINAL APPLICATIONS.

Rate charged to Applicant.					Number of Families.	Number of Expectant and Nursing Mothers.	Number of Children under 5 years.
Half-Price,	...	...	...	...	208	106	118
Free,	...	...	...	...	4,749	2,534	2,535
					4,957	2,640	2,653

REPEAT APPLICATIONS.

Half-Price,	...	...	...	...	1,361	297	1,496
Free,	...	...	...	...	35,932	9,203	36,663
					37,293	9,500	38,159

TOTALS.

Half-Price,	...	...	...	...	1,569	403	1,614
Free,	...	...	...	...	40,681	11,737	39,198
					42,250	12,140	40,812

This table shows that 4,957 original applications were granted during the year for supplies of fresh milk, covering 2640 expectant or nursing mothers, and 2,653 children under five years of age, or, together 5,293 individuals. The repeat applications of these families and of those previously on the roll number 37,293, making a total of 42,250 applications granted. The total quantity of fresh milk ordered was 2,155,821 pints, and the cost £19,200.

Certificates for grants of fresh milk were given by the medical officers at the various Centres for the following reasons:—

SUMMARY OF MEDICAL CERTIFICATIONS ON APPLICATIONS FOR FRESH MILK.

Diseases.	Mothers.		Children.		Total.
	Expectant.	Nursing.	-1 year.	-5 years.	
Debility,	1,227	481	190	324	2,222
Progressing,	—	—	450	435	885
Insufficiency of Breast Milk,	—	10,056	—	—	10,056
Child losing Weight,	—	—	72	369	441
Child under Weight,	—	—	9,032	24,545	33,577
Child's Weight stationary,	—	—	78	307	385
Malnutrition,	—	—	163	121	284
Marasmus,	—	—	3	—	3
<i>Debility—after—</i>					
Infectious Diseases,	—	—	134	629	763
Other Diseases,	176	9	305	804	1,294
<i>Infectious Diseases—</i>					
Measles,	—	—	13	80	93
Whooping-cough,	—	—	15	59	74
Chickenpox,	—	—	1	5	6
<i>General Diseases—</i>					
Anæmia,	112	5	3	8	128
Rickets,	—	—	121	2,493	2,614
<i>Diseases of Respiratory System—</i>					
Bronchitis,	1	—	8	20	29
Pneumonia,	—	—	5	12	17
<i>Others—</i>					
Enteritis,	—	—	3	5	8
Albuminuria,	73	—	—	—	73
Influenza,	—	—	—	—	—
Totals, ...	1,589	10,551	10,596	30,216	52,952

(b) *Dried Milk*.—During the year supplies of dried milk were also given in suitable cases, the brands in use being “Glaxo” and “Ostermilk,” the number of applications received being as follows:—

	Number of Families,	Number of Expectant and Nursing Mothers.	Number of Children under five years.	Number of Packets Ordered.
Original Applications, ...	99	—	101	173
Repeat „ ...	1,356	—	1,404	2,625
Total, ...	1,455	—	1,505	2,798

While the same scale of “necessitousness” is applied to applications for dried milk as to applications for fresh milk, the conditions of grant are somewhat different, for, while grants of fresh milk are refused to families whose income is over the scale, supplies of dried milk may be given at the wholesale rate. The following summary shows the number of packets and the amount recovered, as well as the loss falling upon the Corporation, for the supplies of dried milk issued under these conditions:—

Price per Packet.	Number of Packets Issued.	Cost to Corporation.	Amount Recovered.	Gain or Loss to Corporation.
Full Price, ...	1,420	£101 11 10	£113 8 6	+£11 16 8
Part Price, ...	38	2 12 11	1 18 0	- 0 14 11
Free, ...	1,340	97 8 8	—	- 97 8 8
Total, ...	2,798	£201 13 5	£115 6 6	-£86 6 11

In all, 2,798 packages were distributed under the scheme, of which 1,420 were charged at full price, 38 at part price, while 1,340 were given free, the net cost to the Corporation being £86 6s. 11d.

SEWING, &c., CLASSES.

At the Child Welfare Centres where facilities are available sewing and other work classes and social meetings for mothers are organised by the staff throughout the winter months, and these have become very popular.

Centre.	Nature of Class.	Period.	Day and Hours.	Average Attendance.
Cowcaddens	- Sewing Class	- - Nov. to Mar.	Mon., 7 p.m.	30
Do.	- Play Centre	- - Oct. to Mar.	Wed., 6 p.m.	46
Partick	- Sewing	- - Oct. to Mar.	Tues., 7 p.m.	45
Richard Street,	- Helpers' Sewing Class	- - Oct. to Mar.	Wed., 2.30 p.m.	10
Do.	- Mothers' Club	- - Oct. to Mar.	Thurs., 2 p.m.	50
Maryhill	- Sewing	- - Oct. to Mar.	Tues., 7 p.m.	52
Do.	- Play Centre,	- - Nov. to Mar.	Thurs., 7 p.m.	40
Do.	- Mothers' Club	- - Nov. to Mar.	Third Friday each month, 7.30 p.m.	80
Springburn	- Play Centre	- - Sept. to April	Wed., 6.30 p.m.	18
Kingston	- Sewing	- - Oct. to Feb.	Thurs., 7.30 p.m.	35
Shettleston	- Sewing	- - Oct. to April	Mon., 7 p.m.	80
Do.	- Thrift Club,	- - Oct. to April	Mon., 7 p.m.	60
Bridgeton	- Mothers' Club	- - Oct. to Mar.	Tues., 7 p.m.	55
Gorbals	- Sewing	- - Oct. to Mar.	Tues., 2.30 p.m.	12
Arklet Road	- Sewing	- - Oct. to Mar.	Tues., 7 p.m.	60
Do.	- Singing	- - Oct. to Mar.	Wed., 7 p.m.	34
Do.	- Fathers' Council	- - Oct. to Mar.	Fri., 7 p.m.	40
Govan Town Hall	- Sewing	- - Oct. to Mar.	Thurs., 7 p.m.	33

Fathers' Councils.—The Fathers' Councils at Govan and Bridgeton Centres continued their activities during the winter, 1931-32. The sessional programmes consist of addresses by members of the staff and others, social evenings and outings during the summer months.

ANTE-NATAL CONSULTATIONS.

Glasgow Royal Maternity Hospital.—The total number of cases attending the ante-natal dispensary for the first time was 5,947 during 1931, compared with 5,200 in 1930, while the total attendances during the respective years were 15,989 and 12,201. During 1930 3,447 cases were treated to a termination in delivery, of which 1,292 were attended in their own homes.

The number admitted to the ante-natal wards during 1931 was 1,294, compared with 1,385 in 1930.

At the infant consultations held at the Maternity Hospital there were 7,036 attendances, as compared with 7,387 during the previous year. The first attendances numbered 873.

ANTE-NATAL DISPENSARY—

		1929.	1930.	1931.
Number attending for first time, ...	...	4,742	5,200	5,947
Total attendances, ... ..	...	10,355	12,201	15,989
Number treated to a termination, ...	...	3,113	3,447	4,037
Number sent to Hospital—				
(a) For confinement, ... ..	...	1,781	1,845	2,226
(b) „ miscarriage, ... ..	...	77	109	135
(c) „ ante-natal treatment, ...	...	373	508	612
(d) „ ante-natal treatment and confinement, ... ..	...	185	292	322
(e) For ante-natal treatment and miscarriage, ... ..	...	23	42	62
Number treated on District—				
(a) For confinement, ... ..	...	1,036	1,144	1,274
(b) „ miscarriage, ... ..	...	11	15	18

ANTE-NATAL WARDS—

Average number under treatment, ...	...	31	46	46
Number admitted, ... ..	...	1,141	1,385	1,294
Total days, ... ..	...	11,249	16,755	13,850
Condition on dismissal—				
(1) Recovered, ... ..	...	262	299	330
(2) Improved, ... ..	...	184	203	145
(3) Confinement completed, ...	...	635	795	771
(4) Died, ... ..	...	6	—	1
(5) No change, ... ..	...	60	74	52

INFANT CONSULTATION—

First Attendances, ... ..	...	1,059	1,011	873
Subsequent Attendances, ... ..	...	6,443	6,376	6,163
Total, ... ..	...	7,502	7,387	7,036

With the opening of the new Anderston Centre, the work of the ante-natal service has been further extended. There are now ten centres at which ante-natal clinics are carried on, and during the year, 769 sessions were held, an increase of 106 over the number held during the preceding year. Additional consultations were opened at Springburn, Orr Street, Shettleston and Elderpark. The total number of primary attendances during 1931 was 6,054, compared with 3,602 during 1930, this large increase being due to the rule introduced by the Central Midwives Board in April, 1931, making it obligatory for midwives to send their patients for ante-natal examination by a medical practitioner. Subsequent attendances numbered 19,177 against 13,306 in 1930, while the respective figures for the total attendances were 25,231 and 16,968. The number of consultations and attendances at each centre are shown in the following table.

ATTENDANCES AT ANTE-NATAL CLINICS, 1931.

	No. of Clinic Sessions.	No. of Attendances.		
		Primary.	Subsequent.	Total.
Partick,	89	712	1,873	2,585
Cowcaddens,	68	539	1,819	2,358
Maryhill,	51	470	1,485	1,955
Springburn,	85	578	1,774	2,352
Orr Street,	65	768	2,109	2,874
Shettleston,	99	626	2,584	3,210
Hutchesontown,	104	966	2,924	3,890
Govan,	99	783	2,196	2,979
Elderpark,	100	527	2,233	2,760
*Richard Street,	9	88	180	268
	769	6,057	19,177	25,231

*Opened 2nd November, 1931.

The following tables show (1) the age of mothers who attended and (2) the conditions requiring attention which were found:—

Ages of Mothers.	Partick	Cowcaddens	Maryhill	Springburn	Orr Street	Hutchesontown	Shettleston	Govan	Elderpark	Richard Street	Total.
-20	36	35	24	22	29	51	38	40	32	14	321
-25	131	120	121	135	188	224	152	176	121	68	1436
-30	144	122	132	156	227	273	159	203	148	67	1631
-35	122	182	108	144	190	223	158	193	106	60	1486
-40	75	46	55	83	95	125	80	115	62	43	779
-45	21	12	14	31	26	32	27	36	30	7	236
+45	1	—	1	—	6	9	3	1	1	2	24
Not Pregnant,	5	22	14	5	4	30	13	17	27	4	141
	535	539	469	576	765	967	630	781	527	265	6054

Note.—Cases transferred from Partick to Richard Street (177); Cowcaddens to Hutchesontown (1); Maryhill to Shettleston (1); Springburn to Cowcaddens (1); and Shettleston (1); Orr Street to Shettleston (1); Govan to Shettleston (2); and Shettleston to Orr Street (1).

Conditions Found	Partick	Cow-caddens	Mary-hill	Spring-burn	Orr Street	Shettleston	Hutcheson-town	Govan	Elder-park	Richard Street	Total
Venereal Disease	1	13	11	2	21	6	22	8	9	8	101
Varicose Veins,	58	77	103	49	48	83	80	61	53	57	669
General Debility,	92	166	75	45	103	202	372	59	75	72	1,261
Cardiac Disease,	10	4	10	10	23	18	32	22	41	6	176
Hyperemesis											
Gravidarum,	8	3	3	1	2	—	4	1	2	—	24
Alimentary											
Conditions,	82	75	314	187	100	18	71	156	120	121	1,244
Dentition (Bad),	180	183	146	199	128	314	282	371	140	153	2,096
Contracted											
Pelvis,	15	13	85	10	29	12	22	18	16	30	250
Kidney Disease											
(Albuminuria),	54	178	122	60	63	162	171	146	50	23	1,029
Respiratory											
Disease,	18	11	15	25	53	24	42	44	17	21	270
Hæmorrhage,	17	9	17	6	5	10	31	13	28	2	138
No apparent											
disease,	134	51	15	78	141	96	202	64	55	13	849
Other conditions,	34	94	193	46	148	40	16	57	43	199	870
	703	877	1,109	718	864	985	1,347	1,020	649	705	8,977

The conditions found on medical examination are enumerated in the above statement, but as in many cases two or three causes of illness were present, the total number of conditions is much in excess of the number of mothers. The most frequent conditions requiring attention were those of the alimentary system (including constipation), general debility, anæmia, varicose veins, and albuminuria.

As in former years, about 17 per cent. were primiparæ, as shown in the following summary:—

	Partick	Cow-caddens	Mary-hill	Spring-burn	Orr Street	Shettleston	Hutcheson-town	Govan	Elder-park	Richard Street	Total
Primiparæ,	80	76	87	85	141	105	176	117	83	48	998
Multiparæ,	450	441	368	486	620	512	761	647	417	213	4,915
Not Pregnant,	5	22	14	5	4	13	30	17	27	4	141
Total,	535	539	469	576	765	630	967	781	527	265	6,054

The results, so far as known, as to whether pregnancy resulted at full term, prematurely, &c., are here given, together with the number of still-births:—

PREVIOUS YEAR'S CASES TERMINATED IN 1931.

	Partick	Cow-caddens	Mary-hill	Spring-burn	Orr Street	Shettleston	Hutcheson-town	Govan	Elder-park	Richard Street	Total
Alive,	96	40	67	77	101	99	165	132	105	—	882
Still-Births,	7	1	2	—	4	6	2	5	5	—	32
Full-term,	102	41	66	73	103	105	161	137	110	—	898
Premature,	1	—	3	4	2	—	6	—	—	—	16
Abortion or											
Miscarriage,	2	2	—	1	—	1	3	2	2	—	13
Left District and											
no trace,	—	1	3	2	—	1	4	3	1	—	15
Not Pregnant,	2	3	—	2	5	—	—	3	—	—	15
Died before											
Termination,	—	—	1	—	—	—	—	1	1	—	3
	107	47	73	82	110	107	174	146	114	—	960

Note.—Cases transferred from Cowcaddens to Springburn (2).

1931. CASES.

	Partick	Cow-caddens	Mary-hill	Spring-burn	Orr Street	Shettleston	Hutchesontown	Govan	Elder-park	Richard street	Total
Alive,	381	351	313	396	545	426	640	545	326	160	4,083
Still-Births,	4	5	10	11	23	23	23	20	13	5	137
Full-term,	345	345	299	384	557	440	631	555	329	161	4,046
Premature,	40	11	24	23	11	9	32	10	10	4	174
Abortion or Miscarriage,	11	7	5	10	6	5	13	6	11	3	77
Left District and no trace,	2	9	6	4	5	4	9	7	1	2	49
Died before Termination,	—	—	—	—	2	3	—	—	—	—	5
Not Pregnant,	5	22	14	5	4	13	30	17	27	4	141
Not Terminated	132	145	121	150	180	156	252	186	149	91	1,562
	535	539	469	576	765	630	967	781	527	265	6,054

Among the 5,224 patients, whose pregnancy terminated in 1931, 24 deaths occurred, which is equivalent to a death-rate of 4·6 per thousand births. The rate for the previous year was 5·8. The causes of death were as follows:—Puerperal sepsis 7; ectopic gestation 1; hæmorrhage 2; albuminuria and convulsions 3; other accidents of childbirth 4; certified as cardiac failure following delivery (full time), 2; Respiratory Diseases 3; other causes 2; total, 24.

The total number of still-births, 169, occurring among the pregnancies included in this analysis represents a rate of 3·3 per cent. compared with the average for the city generally of 4·2. The percentage of still-births among the cases, which attended during the previous year, was 3·5.

Comparison of the births occurring at full-time or otherwise shows that during 1931 premature births formed about 3·7 per cent. of the total, as compared with 3·1 for the previous year. Abortions equalled 1·7 per cent. of the pregnancies, compared with 2·0 during 1930.

Of the seven deaths from puerperal sepsis, one was a septicæmia, one was complicated with pelvic cellulitis, one with pelvic peritonitis, one with mastitis and streptococcal pleurisy, one with post partum hæmorrhage and septic pulmonary infarction, one with ulcerative endocarditis and cerebral embolism, and the seventh with lobar pneumonia and mitral incompetence.

The month at which the first attendance was made at the clinic is given below, and shows that almost one-half attended before the seventh month, and the remainder from the seventh month onwards.

Month of Attendance.	Partick	Cow-caddens	Mary-hill	Spring-burn	Orr Street	Shettleston	Hutchesontown	Govan	Elder-park	Richard street	Totals.
1	1	—	—	—	—	1	12	—	—	—	14
2	16	9	12	18	8	22	42	9	10	5	151
3	21	33	22	29	32	29	76	21	15	15	293
4	25	55	24	38	60	30	70	40	67	12	421
5	62	78	39	71	79	90	152	67	57	38	733
6	111	112	58	94	100	107	186	101	85	60	1,014
7	146	118	132	154	211	130	206	174	100	59	1,430
8	121	98	92	134	203	138	170	193	108	60	1,317
9	27	14	76	33	68	70	23	159	58	12	540
Not Pregnant,	5	22	14	5	4	13	30	17	27	4	141
	535	539	469	576	765	630	967	781	527	265	6,054

MATERNAL DEATHS.

In recent years considerable prominence has been given to the problem of maternal deaths, and many studies have been made of this important question. The behaviour of the mortality rate in Glasgow has been specially investigated in order to obtain as accurate a picture as possible of the true facts of the situation. The charts, which are here incorporated, reveal substantial differences in the mortality rates, as between England and Wales, Scotland and Glasgow. Further, the upward tendency is greater in Scotland and greatest in Glasgow. Taking the figures for the last two quinquennia, 1921-25 and 1926-30, the respective rates for puerperal sepsis, abortion, and other maternal causes were as follows:—

	1921-25.			1926-30.		
	England and Wales.	Scotland.	Glasgow.	England and Wales.	Scotland.	Glasgow.
Puerperal Sepsis,	1·401	1·873	2·488	1·751	2·137	2·672
Abortion,	·131	·408	·428	·115	·399	·654
Other Maternal Causes,	2·369	4·003	3·994	2·454	4·186	4·588
Total Rates,	3·901	6·284	6·910	4·320	6·722	7·914

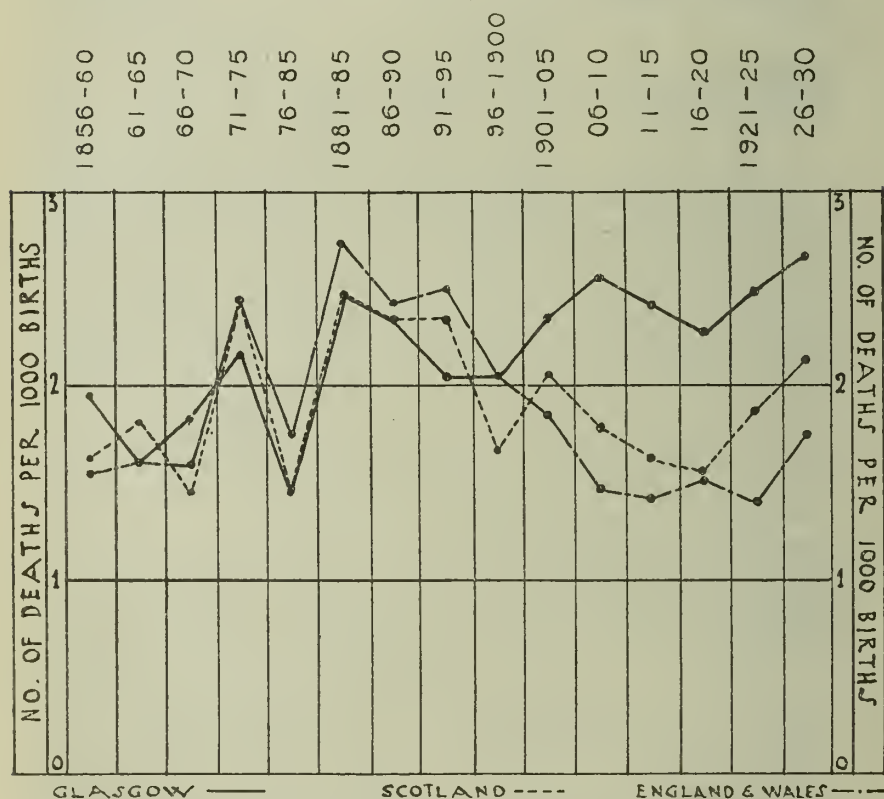
This table shows the position which the city occupies in relation to the national statistics of mortality. The total mortality rates and those for sepsis reveal an upward tendency, but the latter, as also those for abortion, are, for reasons referred to later, not strictly comparable with those for England and Wales. The maternal mortality rates recorded for Scotland and Glasgow have tended to rise continuously, though less steeply than the above table shows, since the beginning of the century. This dissimilarity in the statistics as between the two countries, with regard both to the relative magnitude and to the behaviour of the mortality rates, is shown in greater detail in the table in the Appendix, which gives the mortality rates since 1856-60 in quinquennial periods. It appears from a study of these maternal death-rates that the general trend of mortality, when Scotland is compared with England and Wales, has been in opposite directions. In both countries the rates up till the beginning of last century ran fairly parallel courses, with certain oscillations, such as the rise in 1871-75, the fall in the next quinquennium 1876-80, and the subsequent peak in 1881-85. But since the end of last century a gradual divergence has taken place, the rate for Scotland and Glasgow progressively increasing, that for England and Wales steadily diminishing over a period of twenty years, followed by a slow subsequent rise in more recent years.

Fair comparison between the maternal death-rates of various countries at various times can only be made, if the method of expressing the death-rates is the same in each case, as between Scotland and England differences in the method of classification have tended to vitiate comparisons, though in spite of this it may be inferred that the rising mortality rate in Scotland has represented a real secular trend. The following points are taken from the results of the special inquiry:—

(1) As regards the vital statistics, some of the recorded increase in the mortality rate may be more apparent than real, owing to increasingly

accurate diagnosis and certification of the puerperal causes of death. Every effort has been made locally to assist correct ascertainment in collaboration with the Department of the Registrar-General. Incidentally, comparative statistical studies as between Scotland and England are rendered difficult and unsatisfactory because of differing methods formerly adopted in classifying deaths. (2) The mortality rate for Glasgow due to puerperal sepsis, ascertained as correctly as possible, was 3.1 per 1,000 births during 1931, a figure which includes deaths from post-abortive sepsis. (3) The effect of notification of puerperal pyrexia has been to double the volume of known cases of

PUERPERAL SEPSIS: DEATHS PER 1,000 BIRTHS IN ENGLAND AND WALES, SCOTLAND AND GLASGOW IN QUINQUENNIAL PERIODS SINCE 1856.

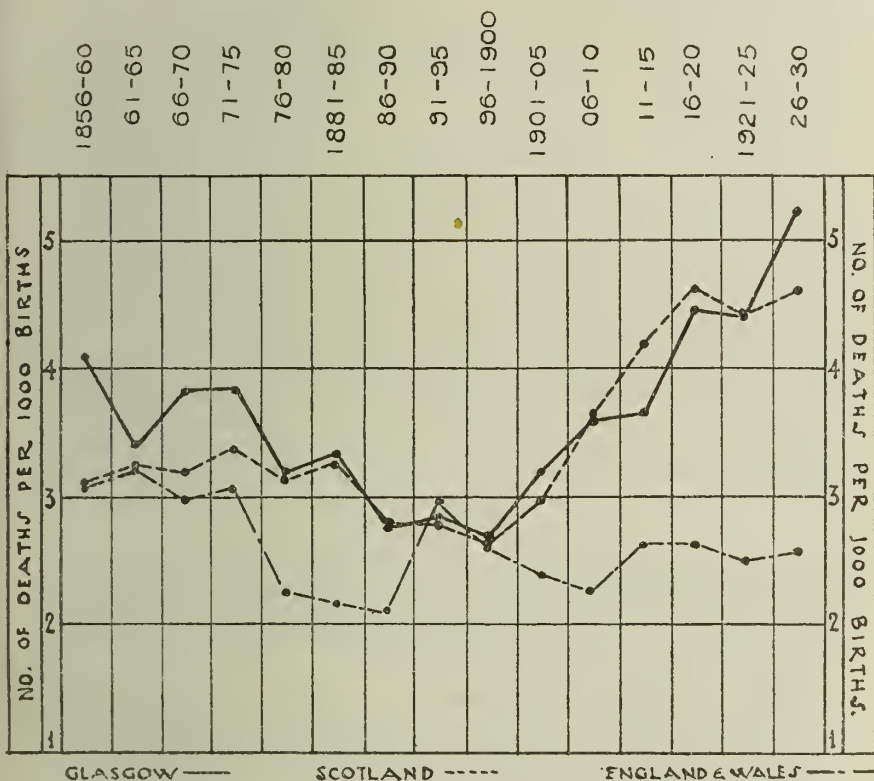


puerperal sepsis occurring annually. Pyrexia means, in fact, sepsis in half of the cases so notified. (4) The volume of cases admitted to hospital for treatment has also almost doubled. Home treatment is not undertaken, and 93 per cent. of all puerperal sepsis is treated in hospital. (5) The epidemiological picture has become much clearer as fewer cases and fewer deaths escape detection. (6) Although the case mortality in hospital was as low as 13 per cent., and 60 per cent. were admitted on or before the third day of illness, the number of fatal cases has not diminished. (7) In explanation of this, there are

two outstanding facts:—(a) Deaths due to sepsis following abortion (one-fifth of the total) are tending, if anything, to increase. This is, in the nature of things, an extremely difficult problem. (b) There is continuing to occur, with apparently undiminished frequency, a very severe and fatal type of infection, which epidemiological studies have so far failed to explain. (8) The majority (at least 70 per cent.) of these grave septicæmic cases are due to infection by a hæmolytic streptococcus, concerning the prevention or treatment of which little is known. Why should it be relatively more common and fatal in

MATERNAL DEATHS OTHER THAN THOSE FROM PUERPERAL SEPSIS :

DEATHS PER 1,000 BIRTHS IN ENGLAND AND WALES SCOTLAND AND GLASGOW, IN QUINQUENNIAL PERIODS SINCE 1856.



Glasgow? (9) It would appear that the possibility of controlling puerperal infection depends largely on the scientific investigation of this organism, and on further combined clinical and bacteriological researches directed to the avoidance of infection in obstetric practice and to the prevention of the consequences of infection. As obstetric difficulties seem to play an important predisposing part, they should be anticipated as far as possible by ante-natal care. The reduction of puerperal infection to a minimum will constitute a severe standard by which to judge the success of an improved midwifery service.

The causes of the increasing maternal mortality in Glasgow have been given in a table of rates per thousand births, but the issue of the altered classification of deaths in 1931 rendered it necessary to re-adjust the table, which is here inserted.

STATEMENT SHOWING MATERNAL DEATHS AND RATE PER THOUSAND BIRTHS IN GLASGOW AND SCOTLAND IN THE YEARS 1927-31.

	Deaths.					Rate per 1,000 Births.				
	1927.	1928.	1929.	1930.	1931.	1927.	1928.	1929.	1930.	1931.
Accidents of Pregnancy, - -	28	34	38	28	10	1.19	1.44	1.67	1.20	.44
Puerperal Hæmorrhage, - -	18	15	25	28	17	.76	.63	1.10	1.20	.74
Puerperal Septicæmia including Post-abortive sepsis, - -	47	79	72	65	66	1.99	3.34	3.16	2.79	2.88
Toxæmia of Pregnancy, Albumi- nuria, Convulsions, - -	29	36	15	28	26	1.23	1.52	.66	1.20	1.13
Other Puerperal Diseases, -	48	44	40	51	27	2.04	1.86	1.75	2.19	1.18
Totals—Glasgow, -	170	208	190	200	146	7.21	8.79	8.34	8.58	6.37
„ Scotland, -	—	—	—	—	—	6.43	6.98	6.87	6.95	5.91

In 1931 there has been a considerable improvement. The number of deaths, 146, is lower by 54 than that for the preceding year, despite the fact that puerperal sepsis is again higher. The maternal death-rate per thousand births, 6.37, compares favourably with 8.58, the rate for 1930, a reduction of 2.21, whereas, if adjustment had been made for the exclusion of Glasgow, the rate for the rest of Scotland is only down by about 0.5. This improvement has taken place in the causes other than puerperal sepsis, which, in the years 1930-31, was not seriously affected by institutional outbreaks as was the case in 1928-29. Deaths from accidents of pregnancy were little more than one-third of those occurring in 1930, and only about one-fourth of those registered in 1929. Hæmorrhage has been reduced by one half. These figures and results represent a very definite improvement on previous experience.

ULTRA-VIOLET RAY CLINICS.

No alteration has taken place in the arrangements for light treatment of children suffering from rickets, malnutrition, &c. The number of consultations held weekly at Cochrane Street and Govan Town Hall remain the same as at the end of last year.

The installation and the results of treatment have been fully dealt with in previous reports, so that only the records of numbers treated are here given in respect of 1931.

RECORD OF ATTENDANCES AND CONSULTATIONS DURING 1931.

	Number of Clinics held.	Children, -1 year.		Children, +1 year.		Mothers. Number of Attendances.		Total Number of Attendances.	
		Prim.	Sub.	Prim.	Sub.	Prim.	Sub.	Prim.	Sub.
Cochrane Street -	144	73	602	420	7,996	22	147	515	8,745
Govan, - - -	146	77	752	298	6,595	16	294	391	7,641
	290	150	1,354	718	14,591	38	441	906	16,386
		1,504		15,309		479		17,292	

AGES OF CHILDREN ATTENDING FOR THE FIRST TIME—						Cochrane Street.	Govan.
-1 year,	...	...	...	...	...	73	77
-2 years,	...	...	...	...	...	231	170
-3 „	...	...	...	...	...	111	60
-4 „	...	...	...	...	...	57	27
-5 „	...	...	...	...	...	21	18
+5 „	...	...	...	...	...	—	23
						<u>493</u>	<u>375</u>

REASONS FOR TREATMENT OF CASES ATTENDING FOR FIRST TIME.

CHILDREN—						Cochrane Street.	Govan.
Rickets.	1. Prophylaxis,	-	-	-	-	-	13
	2. Early Rickets,	-	-	-	-	-	89
	3. Moderate Rickets,	-	-	-	-	-	116
	4. Marked Rachitic deformity,	-	-	-	-	-	95
Rickets c. Tetany,						-	4
Debility after Infectious Disease,						-	25
Debility after Acute Illness,						-	5
Debility—weight stationary, or losing, or not thriving,						-	80
Bronchitis,						-	18
Malnutrition,						-	19
Marasmus,						-	3
Mentally Defective,						-	—
Nervous Instability,						-	4
Skin Diseases,						-	4
Others,						-	14
Cervical Adenitis						-	4
						<u>493</u>	<u>375</u>
MOTHERS—							
Pregnancy,						-	18
Nursing Mothers,						-	4
						<u>22</u>	<u>16</u>

INFANT VISITATION.

Under the scheme of infant visitation every birth is visited if the notification does not state that a medical practitioner has been in attendance, and the following table shows the record of those visited, together with certain information obtained:—

	1929	1930	1931
Inquiry cards returned, ...	17,661	17,670	18,007
Full information obtained,	16,786	16,968	17,273
Doctor found in attendance,	17	7	6
Wrong addresses, ...	—	—	—
Others, ...	858	695	728
Inquiry cards issued, ...	17,466	18,013	17,994

Of those for whom full information was obtained—

Legitimate, ...	15,500	16,081	16,225
Illegitimate, ...	1,099	1,210	1,057
<hr/>			
Born at full term, ...	15,734	16,376	16,333
Premature births, ...	865	915	949

<i>Condition of Infant at Birth—</i>				1929	1930	1931
Well nourished, ...	...	...	...	14,112	14,637	14,276
Fairly nourished, ...	...	...	...	1,171	1,318	1,642
Badly nourished, ...	...	...	...	580	592	608
Still-born, ...	...	...	...	736	744	756

<i>Nature of Feeding at First Visit—</i>				1929	1930	1931
Breast, ...	...	...	...	13,264	13,680	13,769
Artificial, ...	...	...	...	1,695	1,891	1,757
Breast and Artificial, ...	...	...	...	415	493	528
Still-born, ...	...	...	...	736	744	756
Dead at First Visit, ...	...	...	...	489	483	470
Adopted, ...	...	...	...	—	—	2

In addition to home visitation, the nurses attend the Child Welfare Consultations in their own districts. They thus have an opportunity of reporting to the doctor any illness or condition requiring medical treatment, and of following up the case afterwards to see that the treatment recommended is carried out.

TOTAL NUMBER OF VISITS PAID BY NURSES.

		1931.		1930.	
		Primary.	Sub.	Primary.	Sub.
Routine visits, ...	...	24,378	41,821	23,317	40,579
Special visits, ...	...	4,697	3,405	5,139	3,826
Puerperal Fever, ...	...	973	406	821	400
Ophthalmia, ...	...	800	4,292	894	5,161
Ante-natal, ...	...	1,469	333	704	358
Total, ...	...	32,317	50,257	30,875	50,324
		82,574		81,199	

The children found alive on the occasion of the first visit by the Health Visitor are classified in the following table under three groups:—

		Well.	Fair.	Bad.	Total.
1929, ...	...	13,840	1,326	117	15,283
1930, ...	...	14,031	1,379	119	15,529
1931, ...	...	14,236	1,493	116	15,845

Generally speaking, those classified as "well" on the occasion of the first visit were not revisited. The following table is a summary of results found at final visit:—

		Still Good.	Much Improved.	Slightly Improved.	No Improvement.	Worse.	Total.
1929, ...	...	2,879	538	19	1	—	3,437
1930, ...	...	2,775	312	37	11	—	3,135
1931, ...	...	3,298	253	25	8	—	3,584

GLASGOW INFANT HEALTH VISITORS' ASSOCIATION.

Working in association with the Public Health Department is the Glasgow Infant Health Visitors' Association, to whom are reported

children whom it is desirable to keep under observation during a longer period than is possible by the official visitors. The number of visitors fluctuates around 300.

As the period of visitation generally extends over the first twelve months of life, a complete year must elapse before the results of the visitation can be summarised.

The following is a summary of the results for the years 1926-1930:—

Year.	Year old.	Removed.	Dead.	Ceased to be visited.	Visits Un- necessary.	No In- formation.	Visits Resented.	No Visitor.	Total.
1926	1,685	249	161	21	14	5	7	4	2,146
1927	1,717	244	225	5	10	1	6	2	2,210
1928	1,818	326	209	6	6	3	1	—	2,369
1929	1,871	308	193	6	10	3	4	1	2,396
1930	2,181	386	266	10	10	3	2	—	2,858

DOMESTIC HELPS.

Since the scheme for supplying Home Helps was inaugurated in Glasgow towards the end of 1924, there has been an increasing demand for their services. In the first year there were only 17 applications, while in 1931 the total had reached 3,331. The scale of payment is 5s. per day, which is guaranteed by the Corporation. Assistance of this kind for those who can pay this rate is arranged privately, and is not included in the records shown below. Quite a number are being placed in this way as the scheme becomes better known.

Payment for the services of helps is in accordance with a scheme of "necessitousness" based on the scale applicable to grants of milk and meals under the Child Welfare Scheme, with a minimum charge of one shilling per day. The following is a summary of the payments made for services rendered:—

Cases.	Number of Days Attended.	Rate per Day.	Amount Paid by Patient.
1931	1931		1931
154	2,064	1/-	£103 4 0
43	524	1/6	39 6 0
28	376	2/-	37 12 0
16	164	2/6	20 10 0
12	122	3/-	18 6 0
6	57	3/6	9 19 6
2	24	4/-	4 16 0
1931, 261	3,331		£233 13 6
1925, 17	246		£18 11 6
1926, 107	1,407		102 2 6
1927, 118	1,361		105 8 6
1928, 132	1,656½		129 11 6
1929, 195	2,476		195 2 6
1930, 204	2,460½		173 9 0

During 1931, 50 individual helps attended 261 cases for a total of 3,331 days, or an average of 12 days per case. The amount paid in fees was £233 13s. 6d. The helps are remunerated at the rate of 5s. per day, so that the balance falling to be met by the Corporation was £599 1s. 6d.

MATERNITY BUNDLES.

In connection with the Child Welfare movement a very definite need has been met by the issue of maternity bundles, and in accordance with the practice of recent years these are not issued until the birth actually takes place, as in necessitous cases to which they are issued, it was found that quite frequently the garments supplied were misused. In 1931 bundles, or part bundles, to the number of 1,141 were supplied, compared with 800 in 1930 and 441 in 1929. Receipts from those who could make a part payment amounted to £129 4s. 6d., as against £46 9s. received from this source during the preceding year.

DAY NURSERIES.

Including the Phoenix Park Kindergarten, there are, as in the previous year, six Centres with nursery accommodation. The total attendances of children at these Centres during 1931 was 35,918, in comparison with 35,160 during the previous year.

The following figures show the number of attendances, &c., at each Centre during the year :—

Nursery.	Number of Days open.	Total Attendances during the year.	Average.	Maximum number in one day.	Accommo- dation for.
Bridgeton,	243	7,693	31	42	40
Cowcaddens,	250	5,912	24	32	36
Phoenix Park Kinder- garten,	190	4,837	25	31	31
Milton,	232	5,701	24	36	38
Hutchesontown,	252	7,378	29	40	38
Kingston,	218	4,397	20	27	30

Day Nurseries.—Outbreaks of measles, whooping-cough, chicken-pox, and scarlet fever, were responsible for reduced attendances at Cowcaddens, Milton, Hutchesontown, and Phoenix Park Day Nurseries.

From the proceeds of a whist drive held in Bridgeton Day Nursery, some Montessorri apparatus was purchased, and has proved an important factor in providing educational play for the children.

With regard to the Kindergarten, Miss Winifred M. Anderson, the voluntary superintendent, submits the following report :—

“ During the year we have had one acute case of rickets, that of a little half-caste boy, who entered the Kindergarten at two years and nine months, unable to walk. After eight months he was running about and thoroughly enjoying his new-found independence. He spent four months at Hillside Home, Clynder, the rest of the time at the Kindergarten, attending twice weekly for the sun-ray treatment.

“ The summer holiday at Clynder was enjoyed by twenty-nine children and was, as usual, full of many happy seaside and country experiences.

“ The Kindergarten was re-opened for a week in July for the benefit of visitors attending the Sanitary Congress.

“ Three students from the Training College came two days a week, for a term, in order to get some Nursery School experience, and we have also had periodic visits from teachers taking a special course for work with M.D. children—some of the work done with normal pre-school children being found suitable for use with older defective children.

"Two nurses doing the Health Visitor's training have had a week's practical training at the Kindergarten.

"During the two winter terms, two play centres and a club for girls from eleven to fourteen years have been carried on weekly.

"In the Kindergarten work the aim has been to try and make all the activities educational, and to provide an environment that is healthy and home-like, that encourages the children in the appreciation of beauty, and is both stimulating, and, at the same time, restful in its orderliness."

JUVENILE UNEMPLOYMENT CLASSES.

53 girls from the Juvenile Unemployment Classes attended certain Day Nurseries for a course of training in Laundry and Kitchen Work and the Care of Infants. Of these, only ten completed the training period of one month. The work done was of a satisfactory standard.

Training was also given at the Day Nurseries to 28 pupils of the College of Domestic Science.

COUNTRY HOMES.

The following analysis shows that 471 children were admitted under the Child Welfare Scheme to the three Country Homes during the year, the two principal reasons for admission being rickets and malnutrition:—

	Mount Vernon.	Scots- toun.	Mount Blow.	Total.
Rickets,	78	50	54	182
General Malnutrition, and Debility,	21	90	54	165
Bronchitis,... ..	3	3	—	6
Debility after acute illnesses,	5	8	28	41
Anæmia,	62	4	4	70
Nervousness,	—	5	—	5
Others,	—	1	1	2
	169	161	141	471

The dismissals during the year were 222 from Mount Vernon, 152 from Scotstoun, and 148 from Mount Blow. The condition on dismissal is summarised in the following statement:—

	Mount Vernon.	Scots- toun.	Mount Blow.	Total.
Much improved,	142	130	76	348
Not improved,	—	2	1	3
Parents leaving City, ...	2	3	—	5
Transferred suffering from infectious disease, ...	17	10	12	39
Taken home by parents (fretting, &c.),	3	3	23	29
Died,	—	—	—	—
For admission to other In- stitutions,	—	2	1	3
Sent home,	8	2	—	10
Contacts with cases of Infec- tious Disease sent home,	50	—	35	85
	222	152	148	522

Of the total, 522, discharged from Country Homes during the year, 348 were much improved, while 39 were transferred suffering from infectious disease, and 85 others dismissed as contacts with these. During the preceding year the respective figures were 248 much improved, 17 transferred with infectious disease, and 92 sent home as contacts.

Garscube Cottage Hospital.—The arrangement whereby this Home was taken over for the purpose of giving debilitated mothers with young children an opportunity of recuperating their health by a fortnight's rest has been continued. During the year, 181 mothers with 183 infants were admitted, while dismissals numbered 180 mothers and 182 infants. Of the total, 124 completed fourteen days' residence, while nine others were kept in for a few days longer; the remainder (14) left before the end of the fortnight, mostly for domestic reasons.

MIDWIVES AND MATERNITY HOMES ACT, 1927.

Six applications for registration were dealt with during the year, all of which were granted. One of these applications was necessitated by a change of address, the others being in respect of new homes. Two certificates of registration were withdrawn, one being cancelled owing to change of address, while in the other case the keeper had discontinued the home.

The following is the number of Maternity Homes on the Register at 31st December, 1931.

	Registered.	Exempted.
Maternity Hospitals,	2	—
General Infirmaries and Hospitals, ...	—	5
Nursing and Maternity Homes, ...	48	3
	<u>50</u>	<u>8</u>

MIDWIVES (SCOTLAND) ACT, 1915.

During 1931 there was a decrease of four in the number of midwives who notified their intention to practise (259 against 263 in 1930); the number of these entitled to registration "by examination" remains the same (172). Those registered as having been "in practice 1914" numbered 87 or 4 less than in 1930. Other changes are as follows:—4 died, 5 left Glasgow, 4 resigned, 4 were struck off the roll, and one reported to the Board was cautioned. Twenty-one midwives notified their intention to practise for the first time, all but two of these being entitled to registration by examination. A number ceased to notify intention to practise.

There is a decrease in births notified of just over 400. The decrease in midwives' cases is over 800, which is accounted for by the transfer of this number to the institutional category (indoor and outdoor),

probably for economic reasons. Cases of infant deaths (within ten days) per 1,000 births have increased from 24·0 to 26·07, there being a slightly larger number among midwife and outdoor maternity cases.

There is an increase of 22 in the number of cases confined in registered midwives' houses, the increase being amongst cases where the doctor was engaged to attend the confinement—172 against 137; normal confinements—137 against 124, other than normal—138 against 129.

The following table summarises the numbers for the year, with relative figures for the two preceding years:—

	1929	1930	1931
Midwives in Practice during year,	275	263	259

THE QUALIFICATIONS FOR CERTIFICATION UNDER
ACT, HELD BY THE FOREGOING WERE—

In Practice, December, 1914,	98	91	87
C.M.B. (Scotland) Examination,	136	133	133
Other recognised qualifications,	41	39	39

In the following table some indication is afforded of the number of births attended during the year by individual midwives. It would seem that of the 8,805 births attended by midwives, 6,494 occurred in the practice of midwives with 50 confinements or more in the year:—

BIRTHS NOTIFIED BY MIDWIVES.

	1929		1930		1931	
	Births.	Midwives.	Births.	Midwives.	Births.	Midwives.
Under 50 Notifications,	2,399	153	2,267	139	2,311	145
50-100 " ...	3,423	49	2,992	41	2,874	40
100-200 " ...	3,252	24	3,856	28	3,164	23
200-300 " ...	666	3	672	3	456	2
	9,740	229	9,787	211	8,805	210

STILL-BIRTHS NOTIFIED BY MIDWIVES.

Notifications.	Midwives.			Still-Births notified.		
	1929	1930	1931	1929	1930	1931
1-5, " 	117	99	105	226	217	205
6-10, " 	6	8	5	41	58	36
10+, " 	1	—	—	12	—	—
	124	107	110	279	275	241
Percentage of Births attended,				2·9	2·8	2·7

1929	In 93 cases, Doctors assisted.
1930	In 93 " " "
1931	In 83 " " "

The figures in the two following summaries contain records of ophthalmia occurring in the practice of midwives, so that the numbers

are not the same as the actual cases referred to in other sections of this Report:—

CASES OF OPTHALMIA NEONATORUM OCCURRING IN PRACTICE OF MIDWIVES.

Notifications.	Midwives.			Cases notified.		
	1929	1930	1931	1929	1930	1931
1-5,	75	77	65	173	179	160
6-10,	17	16	16	127	114	122
11-15,	7	5	7	87	66	91
16-20,	—	2	3	—	33	54
21-25,	1	1	—	22	21	—
Over 25,	—	—	—	—	—	—
	100	101	91	409	413	427
Percentage of Births attended, ... ..	...	...	...	4.2	4.2	4.8

CASES OF PUERPERAL FEVER OCCURRING IN PRACTICE OF MIDWIVES.

	Midwives.			Cases.		
	1929	1930	1931	1929	1930	1931
1 Case,	45	47	45	45	47	45
2 Cases,	23	14	21	46	28	42
3 „	5	17	12	15	51	36
4 „	2	4	3	8	16	12
5 „	2	1	2	10	5	10
6 „	—	1	—	—	6	—
7 „	—	—	1	—	—	7
8 „	—	1	—	—	8	—
	77	85	84	124	161	152

NUMBER OF REQUESTS FOR ASSISTANCE TO MEDICAL PRACTITIONERS IN CASES OF EMERGENCY UNDER RULE.

Notifications.	Midwives.			Requests made.		
	1929	1930	1931	1929	1930	1931
Under 10,	100	70	81	404	281	327
„ 20,	42	51	34	571	669	500
„ 30,	27	16	22	659	371	544
„ 40,	13	15	14	455	518	467
„ 50,	3	11	6	131	493	261
Over 50,	4	7	11	229	401	156
	189	170	168	2,449	2,733	2,255

During the year there were 2,755 occasions on which medical help was called by midwives, which represents 31 per cent. of the total births occurring in the practice of midwives, and compares with

28 per cent. in 1930 and 25 per cent. in 1929. Details of the nature of emergency are not given this year, but the following indicates the period during which medical assistance was called:—

NATURE OF EMERGENCY.						1929	1930	1931
In all cases in which a woman during pregnancy, labour, or lying-in appears to be dying or is dead,						2	3	1
PREGNANCY.—In cases of a pregnant woman, where there is any abnormality or complication,						141	126	128
LABOUR.—In the case of a woman in labour at or near term, when there is any abnormality or complication,						1,598	1,857	1,867
LYING-IN.—In the case of a lying-in woman, when there is any abnormality or complication,						269	326	333
THE CHILD.—In the child, when there is any abnormality or complication,						421	411	407
Cannot be classified,						18	10	19
Total,						2,449	2,733	2,755

DEATHS (NOTIFIED BY MIDWIVES) BEFORE A
DOCTOR WAS IN ATTENDANCE, ... 3 mothers, 15 infants ;

LAYING OUT THE DEAD, ... 1 adult, 2 infants ;

ARTIFICIAL FEEDING, ... 53 Notifications.

INTIMATION OF EXPOSURE TO INFECTION.

DISEASES.						1929	1930	1931
Puerperal Fever,						108	122	99
Measles,						10	9	21
Scarlet Fever,						2	9	11
Diphtheria,						2	3	2
Pneumonia,						6	9	2
Erysipelas,						3	3	2
Enteric,						—	—	—
Chickenpox,						3	—	3
Whooping Cough,						—	2	4
Pyrexia,						—	6	29
Others,						6	2	7
Pemphigus,						—	—	10
						140	165	190

Fees to Doctors in Emergency Cases.—In the following table the total amount of accounts for the year ending November is shown, that being the period at which doctors' accounts are made up:—

Year ended November, 1922,	...	...	£2,040	7	0
Do. do., 1923,	...	...	1,829	17	0
Do. do., 1924,	...	...	1,229	0	0
Do. do., 1925,	...	...	1,416	18	0
Do. do., 1926,	...	...	1,610	4	6
Do. do., 1927,	...	...	1,456	11	6
Do. do., 1928,	...	...	1,632	5	0
Do. do., 1929,	...	...	1,711	0	6
Do. do., 1930,	...	...	2,043	11	0
Do. do., 1931,	...	...	2,116	18	0

The practice of issuing accounts with the object of recovering some part of the fee, which was begun as from June, 1922, has been continued, and during the past year £331 6s. has been so recovered, while £27 9s. was withdrawn from medical practitioners' accounts, and accounts for £12 14s. 6d. were deleted.

OPHTHALMIA NEONATORUM.

During the year 1931, 805 cases of Ophthalmia neonatorum were notified, compared with 822 in 1930. Analysis of these notifications indicates that the greater number of the cases are reported by institution nurses and midwives.

CASES OF OPHTHALMIA NEONATORUM ACCORDING TO NATURE OF ATTENDANCE AT BIRTH.

Doctors,	...	...	...	...	32
Institutions,	...	...	...	...	88
Institution Nurses,	...	...	...	...	258
Midwives, etc.,	...	...	...	...	427
Total,	...	...	...	...	<u>805</u>

In the regulations for the notification of ophthalmia neonatorum, every medical practitioner must notify "any inflammation that occurs in the eyes of an infant within twenty-one days from the date of birth, if accompanied by a discharge." In the Regulations issued by the Central Midwives Board in Scotland, it is laid down that medical assistance must be invited by the midwife, wherever the new-born child shows "any inflammation of or discharge from the eyes, however slight." In Glasgow, notification to the Medical Officer of Health of the occurrence of this inflammation is accepted as a call for medical assistance.

Of the total births registered during 1931, 22,926, the number attended by midwives and nurses in institutions was 13,069. This explains the high rate of notification of cases of ophthalmia neonatorum in Glasgow.

During 1931 an analysis has been made, both clinical and bacteriological, of all cases notified. Clinically, they were found to fall into

the following groups:—(a) Cases which showed a purulent discharge and a marked degree of chemosis were classified as ophthalmia; (b) Cases in which there was purulent discharge with inflammation of the conjunctiva but no chemosis were classified as purulent conjunctivitis; and (c) Cases in which there was mucopurulent or mucous discharge with slight inflammation of the conjunctiva were classified as simple conjunctivitis.

The following is the clinical analysis of the 805 notifications:—Ophthalmia 244; Purulent Conjunctivitis 188; Simple Conjunctivitis 225; Styne 4; Dacrocystitis 3; Pemphigus 2; Normal 139; total, 805.

The period after birth within which the first signs of inflammation appeared is given as follows for the whole series, *i.e.*, within 12 hours, 60 cases; between 12 hours and 4 days, 267 cases; between 4 and 8 days, 308 cases; over 8 days, 170 cases. This period is important as regards gonococcal infection as it indicates the probable source of infection. Thus of the total cases, 41 in number, due to this cause, in 18 the first signs appeared within 4 days after the birth of the child, in 18 between 4 and 8 days, and in 5 later than 8 days.

Routine examination for the causative organisms was made in every case reported showing signs of catarrhal inflammation. The results are given in the following table, which has been prepared in accordance with the reports and advice of the City Bacteriologist, who has undertaken the examination and classification of the specimens. It is intended to continue this bacteriological survey in future years in order to obtain an epidemiological picture of the part played by various organisms in causing affections of the eyes of newly born children:—

	Ophthalmia.	Purulent Conjuncti- vitis.	Simple Conjuncti- vitis.	Normal.
Gonococcus, ...	41	—	—	—
Gram-positive Bacillus, ...	26	23	39	3
Gram-positive Diplococcus,	40	30	32	1
Gram-positive Bacillus and Diplococcus, ...	6	10	12	—
Diphtheroid, ...	52	66	68	7
Gram-negative Bacillus, ...	5	2	—	—
Staphylococcus, ...	36	19	3	—
Koch-Weeks Bacillus, ...	11	9	—	—
Micrococcus Catarrhalis,	4	3	2	—
Streptococcus, ...	4	5	—	—
Bacillus of Diphtheria, ...	1	—	—	—
Bacillus Morax-Axenfeld,	1	2	3	—
Pneumococcus, ...	—	1	—	—
No Organism, ...	17	18	66	128
	244	188	225	139

Dacrocystitis—Staphylococcus,	...	= 3
Styne — ”	...	= 1
Pemphigus, ...	...	= 2

Treatment.—Of the total cases, 58 were removed to hospital and 79 attended hospital for outdoor treatment and made 318 attendances. The others were treated at home or at the child welfare centres by the nurses, who made 5,092 visits.

Analysis of Indoor Cases.—The number of admissions was 76, including cases occurring outwith Glasgow. Three cases were re-admitted after dismissal. Bacteriological examination of the 76 cases showed the following result:—Gonococcus 32; Gram-positive Bacillus 5; Gram-positive Diplococcus 2; Gram-positive Bacillus and Diplococcus 2; Diphtheroid 9; Staphylococcus 8; Micrococcus Catarrhalis 2; Streptococcus 1; Koch-Weeks Bacillus 1; No Organism 14; total, 76.

The Wassermann test for syphilis was performed in 73 of the 76 cases. In every case the result of the test was negative, and in none of the children was there any evidence of a syphilitic infection.

RESULT OF TREATMENT.

	Gonococcal.	Non-Gonococcal.
Cured,	40	763
Normal—No Corneal Defects, —	—	—
Dead,	1	—
Removed,	—	1

Prevention.—Before 1921, the average number of gonococcal cases in Glasgow was about 150 per annum. With 1921 there came a remarkable drop and from 1922 onwards the number is about one-third of what it was earlier. This very substantial reduction in incidence is largely due to the compulsory treatment of the eyes with silver nitrate. The national scheme for the treatment of venereal disease has been in effective operation since 1919, and a fall in the number of gonococcal cases of ophthalmia neonatorum might therefore have been expected. Moreover, since 1925 special facilities for the treatment of venereal disease have been provided at six of the ante-natal centres and since 1928 at the Maternity Hospital. The main point to be secured in prevention is the diagnosis and adequate treatment of gonococcal infection in the pregnant woman, and an analysis of the ante-natal histories in the notified cases during 1931 shows this result:—

	All Cases.	Gonococcal Cases.
Ante-natal supervision,	355	18
No Ante-natal supervision,	450	23

These figures illustrate the practical difficulty of dealing with gonorrhœa in the female, *i.e.*, the difficulty of diagnosis. In the above figures, in 18 of the 41 gonococcal cases the mother had attended either a clinic or a general practitioner during pregnancy, and yet a diagnosis of the infection was not made. The symptoms of infection are often slight and even when the infection is suspected and a specific examination is made, the detection of the gonococcus is by no means easy. It would appear that prevention of ophthalmia neonatorum due to

the gonococcus rests upon diagnosis and treatment of infection during pregnancy, and that the difficulty inherent in making such a diagnosis is much greater than is generally supposed. Until some test for gonococcal infection is found equally reliable with the Wassermann test for syphilis, no substantial reduction can be expected in the incidence of gonorrhœa in the female or in the number of cases of gonococcal infection of the eyes of newly born children.

PUERPERAL FEVER AND PUERPERAL PYREXIA.

Puerperal Fever.—The relative figures showing cases, deaths, &c., for the past ten years are tabulated here for comparison:—

		Cases.	Deaths.	Case Mortality per cent.	Cases per 1,000 Births.	Deaths per 1,000 Births.
1922,	... ..	294	94	32·0	10·4	3·3
1923,	... ..	278	72	25·9	10·4	2·7
1924,	... ..	239	61	25·5	9·5	2·4
1925,	... ..	300	68	22·7	11·8	2·3
1926 (Old City),		307	69	22·5	12·6	2·8
1927,	... ..	277	61	22·0	11·7	2·6
1928,	... ..	413	89	21·5	17·5	3·8
1929,	... ..	516	86	16·7	22·6	3·8
1930,	... ..	598	86	14·4	25·6	3·7
1931,	... ..	663	71	10·7	28·9	3·1

Puerperal Fever and Puerperal Pyrexia.—Puerperal sepsis is the most important individual cause of maternal mortality, and, as such, it has received particular attention in these reports, and in 1930, the Department of Health for Scotland issued Regulations which came into force on 1st October of that year, requiring the notification of all cases of puerperal pyrexia in addition to the former provision for the notification of puerperal fever.

The object of these regulations is to secure notification of the morbid conditions of the puerperium accompanied by fever, and to enable puerperal infection to be recognised, investigated, and treated at the commencement of the illness. Their enforcement has led to an increase in the notifications of puerperal fever as such. Further, it is common to find that a notification of puerperal pyrexia means, in fact, one of puerperal sepsis. The administrative arrangements made in connection with these regulations involve a scrutiny of all notified cases, verification of the diagnosis, followed by allocation, as far as possible, to the several puerperal conditions giving rise to the fever. When this is done, the problem of incidence widens out considerably; the number of known cases occurring annually has doubled within the past five years. The following table illustrates the movements which are taking place:—

GLASGOW.—DATA REGARDING PUERPERAL FEVER AND PYREXIA.

Year.	Puerperal Fever.	No. of Deaths (M.O.H. Figures).	Deaths as Classified by Registrar General.	Cases per 1,000 Births.	Deaths per 1,000 Births (M.O.H. Figures).	Puerperal Pyrexia.	Deaths due to Abortion Sepsis included in M.O.H. Figures.	Cases Treated in Puerperal Fever Wards (Deaths in Brackets).
1921	321	72	—	10·8	2·4	—	—	268 (54)
1922	294	94	—	10·4	3·3	—	—	232 (53)
1923	278	72	—	10·4	2·7	—	—	246 (56)
1924	239	61	—	9·5	2·4	—	—	205 (43)
1925	300	68	—	11·8	2·3	—	—	247 (42)
1926	307	69	52	12·6	2·8	—	—	262 (46)
1927	277	61	47	11·7	2·6	—	14	220 (40)
1928	413	89	79	17·5	3·8	—	13	290 (59)
1929	†516	86	72	22·6	3·8	*49	13	339 (63)
1930	†598	86	65	25·6	3·7	235	19	389 (57)
1931	†663	71	66	27·2	3·1	228	19	405 (52)

*October to December.

†Corrected figures after transfer to this column of cases notified as puerperal pyrexia.

In 1931, 465 cases of pyrexia were notified, but on further scrutiny of the progress of the cases 251 were regarded as due to puerperal infection, a change in diagnosis which took place mostly in hospital. It is apparent from the table that the effect of the new regulations has been to assist considerably the ascertainment of the amount of puerperal infection, which, at the moment, has reached a proportion of 27·2 per 1,000 births. This figure is obtained by taking the total notifications for the year of fever and pyrexia together, which for 1931 was 891 cases, and endeavouring to assess the volume of actual puerperal infections. There is a tendency for the medical practitioner to adopt the alternative term, *i.e.*, pyrexia as a designation in complying with his statutory duty as regards notification rather than to employ the older term, puerperal fever, as shown by the fact that over fifty per cent. of cases notified as pyrexia subsequently turned out to be definite cases of puerperal sepsis. The term puerperal pyrexia, therefore, is not only a widely embracing clinical sign accompanying many diseases causing a febrile state, but, in practice, connotes puerperal sepsis in approximately half the cases so reported. It is not assumed that these notifications reflect the full incidence of pyrexia as defined in the regulations, an ideal scarcely attainable. Probably the great majority of the cases, other than transient mild infections are reported, especially when specialist advice, observation or treatment in hospital is desired. Ascertainment is also assisted by co-operation with maternity hospitals and homes, as well as by the operation of the rules regarding the duties of midwives in the matter of pyrexia. There remains a considerable residue of pyrexias, other than those regarded as due to sepsis, left over as a sort of side issue. Most of these occurred in maternity hospitals, while a number were admitted to the puerperal wards for diagnosis and treatment. Indeed, 70 per cent. of the pyrexias belonged to these two categories. An attempt has been made by Dr. Walker to classify them, as far as possible, on the basis of diseases of systems.

Classification of Pyrexias.—Administration is charged with the duty of distinguishing pyrexias due to puerperal infection from those due to other causes, a rather uncertain and difficult function. Since the regulations came into force, this separation has been attempted, as explained above. Taking last year as an example, after transferring to puerperal fever such of the 465 notifications as seemed properly to belong to that category there remained 228 cases of pyrexia accompanying a great variety of clinical conditions, as follows:—

Respiratory—Pneumonia 33 (18 deaths), bronchitis 14 (2 deaths), phthisis 13 (10 deaths), pleurisy 4, influenza 11. Circulatory—Heart disease 3 (2 deaths), phlebitis 7. Blood—Secondary anæmia 3, pernicious anæmia 1. Urinary—Nephritis and uræmia 4 (3 deaths), pyelitis 25, albuminuria 1, cystitis 2. Digestive—Gastritis, enteritis, tonsillitis, etc., 9. Metabolism—Eclampsia 1, serum disease 6. Joints and muscles—Rheumatism 2. Lactation—Mastitis 32, engorged breasts 4. Infections—scarlet fever, erysipelas, mumps, measles, &c., 8. Mental—mania 2. Accidents of pregnancy—Incomplete abortion, &c., 16. Accidents of parturition—Perineal lacerations 2. Cæsarean section 4, acute ovaritis 1, acute antelexion 1. Pyrexias of undefined origin 19. This includes cases which could be ascribed to no other cause, and were probably puerperal infections. In addition, there were 42 other notifications, comprising 30 abortions and 12 due to a variety of other conditions not connected with childbirth.

It might be argued that the use of the term pyrexia as a basis for notification is purposeless and illogical when the cause is clearly due to some other condition than puerperal sepsis. If all such cases as defined in the regulations were faithfully reported, the number might be embarrassing, and it may be asked whether the use of a clinical term could not be discarded, especially as facilities exist for obtaining expert advice as to diagnosis and hospital treatment in suspected or early cases. The practical question, however, is—Does notification of pyrexia have the intended effect of directing attention to the possibility of sepsis, and thereby securing treatment as quickly as possible? It has been pointed out, as one of the results of experience, that in one-half of the cases notified pyrexia means sepsis, and in the other half is due to some other condition, thus throwing the onus of final diagnosis on those who receive the notification and administer the case. In actual practice, such a notification often means that there is a strong suspicion or even a certainty that puerperal sepsis is present. In fact, pyrexia is employed as a convenient synonym for the dreaded puerperal or child-bed fever. It is sometimes put to a psychological purpose as a novel and useful term, in order to make easier the path to hospital treatment of patients where the home circumstances are not too satisfactory, or where it is felt that immediate admission is desirable. The notification of pyrexia, therefore possesses advantages, and it would be premature to discontinue it.

Bacteriological Examinations.—Thirty-two specimens were submitted to the City Bacteriologist of which 26 were swabs and 6 for

blood culture. The falling-off in use of this service for last year is largely accounted for by the isolation hospitals doing their own bacteriological examinations.

Nursing Services.—The practice in Glasgow of admission of puerperal fever to hospital rather than offering home nursing facilities has been continued. Where, however, home treatment was desired for cases of puerperal pyrexia, the Glasgow District Nursing Association met the demand, the cases, however, only numbering 8, and the visits 224.

Consultant Services.—During the year, 21 consultations with general practitioners were arranged of which 12 were admitted to hospital and 9 left at home, in each group only one of which subsequently died. This shows a decrease in the requests for consultations which might be further developed with advantage to all concerned.

Glasgow Royal Maternity and Women's Hospital.—On the 10th October, a consultant obstetrician was appointed by the Managers of this hospital to the isolation unit and a special indoor resident, with a view to the prevention of the spread of sepsis in the hospital. The rota is altered every six months.

There is still a need for an earlier transfer of cases for energetic treatment to the Corporation Isolation Hospitals while the disease is early and localised.

PUERPERAL FEVER AND PYREXIA FOR THE YEAR ENDING 31ST DECEMBER, 1931.

CASE-RATES AND DEATH-RATES ACCORDING TO ATTENDANCE AT BIRTH.

	Total.		Deaths.		Total Cases		Cases per 1,000 Births.		Deaths.		Deaths per 1,000 Births.		Case Mortality per cent	
	Fever.	Pyrexia.	Fever.	Pyrexia.	Fever.	Pyrexia.	Fever.	Pyrexia.	Fever.	Pyrexia.	Fever.	Pyrexia.	Fever.	Pyrexia.
<i>Doctors—</i>														
Doctors only, ...	94	25	16	2										
Doctors and Midwives, ...	30	7	10	1										
Doctors and Queen's Nurses, ...	15	—	4	—										
	139	32	30	3	139	32	23.0	5.3	30	3	5.0	.5	21.6	9.4
<i>Midwives—</i>														
Midwives only,* ...	105	41	10	3										
Midwives calling Doctors, ...	47	10	7	1										
	152	51	17	4	152	51	17.2	5.9	17	4	1.9	.5	11.2	7.7
*1 Fever and 1 Pyrexia attended by Midwives attached to Govan Maternity Cottage Hospital.														
Pupil Midwife,...	...	...	...	...	1	—	—	—	—	—	—	—	—	—
Maternity Hospital, Indoor, ...	...	...	...	...	173	69	57.3	22.8	17	6	5.6	2.0	9.8	8.6
„ Outdoor, ...	...	...	...	...	96	24	22.7	5.7	9	6	2.1	1.4	9.4	25.0
Local Authority Hospitals, ...	...	...	...	...	43	34	22.8	18.1	6	9	3.2	4.8	14.0	26.5
Govan Maternity Cottage Hospital, ...	...	...	...	...	—	3	—	7.2	—	—	—	—	—	—
Confined outside City—nursed in Glasgow, ...	...	...	...	...	13	1	—	—	4	—	—	—	—	—
No one (Abortions), ...	...	...	...	...	44	7	—	—	8	1	—	—	—	—
Others (Infirmarys, Fever Hospitals, &c), ...	...	...	...	...	2	7	—	—	—	6	—	—	—	—
	663	228	27.2	9.4	91	35	3.7	1.4	13.7	15.3				

Note.—The City rate per 1,000 births can only be approximate, as a large number of puerperal cases follow abortion, the number of which is unknown.

SECTION IV.

INFECTIOUS DISEASES.

The number of cases of the various infectious diseases registered during 1931, and the number treated in Local Authority Hospitals and other institutions, are given in the Appendix Table XVII.; the seasonal prevalence of each is shown in Table XIX., which gives the numbers registered during each month of the year.

For purposes of comparison, the rates for each disease per million of the population, along with the rates for the preceding four years, are given in Table XVIII. of the Appendix. The rates for the principal diseases which have been notifiable over a considerable period are summarised in the following table from 1913 onwards.

GLASGOW.—CASE-RATE PER MILLION OF THE POPULATION FOR ALL CASES OF INFECTIOUS DISEASES REGISTERED SINCE 1913.

YEAR.	Typhus Fever.	Enteric Fever.	Continued and Undefined.	Puerperal.	Smallpox.	Scarlet Fever.	Diphtheria and Membranous Croup.	Cerebro-spinal Fever.	Phthisis.	Non-Pulmonary Tuberculosis.	All Other Diseases.	TOTAL.
1913,	39	232	7	144	...	4,005	1,934	35	2,552	...	26,247	35,195
1914,	18	340	7	206	...	5,337	1,440	45	2,284	1,088*	21,675	32,440
1915,	9	248	5	175	...	5,973	1,257	167	2,169	1,375	25,389	36,667
1916,	17	158	8	178	...	3,719	1,220	131	2,285	1,270	17,001	25,987
1917,	1	82	4	148	...	1,634	1,146	75	2,435	1,433	27,005	33,963
1918,	49	128	12	151	1	1,193	1,379	67	2,258	1,273	16,045	22,556
1919,	30	103	8	163	5	2,443	1,626	72	1,834	1,083	21,359	28,726
1920,	8	204	13	267	477	3,378	1,809	76	2,009	1,063	25,509	34,813
1921,	6	100	7	299	19	3,272	1,727	56	1,902	1,061	23,965	32,414
1922,	18	79	6	274	...	3,234	1,572	62	1,818	977	31,633	39,674
1923,	2	117	20	259	...	3,321	1,645	59	1,606	1,149	25,805	33,984
1924,	...	76	18	222	2	2,965	1,768	61	1,703	1,137	30,881	38,835
1925,	...	41	8	279	...	3,551	1,617	58	1,490	1,039	22,309	30,430
1926,†	7	92	4	283	...	4,350	2,130	60	1,646	945	31,865	41,385
1927,	...	136	4	254	...	3,777	2,785	72	1,489	1,010	32,021	41,550
1928,	...	53	4	379	...	2,971	2,414	94	1,582	1,016	29,368	37,880
1929,	...	78	4	474	20	3,079	1,944	186	1,656	911	28,838	37,192
1930,	2	129	4	549	3	4,555	2,407	136	1,549	962	32,002	42,298
1931,	1	102	3	609	...	6,449	1,937	167	1,564	897	36,942	48,671

* Non-pulmonary tuberculosis made compulsorily notifiable, July, 1914.

† Rates are for extended city.

The above table shows the movement of the principal infectious diseases in recent years. The relatively high rate for "all other diseases" in 1931 is largely due to the heavy incidence of both whooping-cough and measles. The various diseases are dealt with in detail in the following pages.

DISEASES FORMERLY CALLED "PRINCIPAL ZYMOTIC DISEASES."

The death-rates for several periods have been :—

1881-90, 3-600 per 1,000 living.	1926, 1-257 per 1,000 living
1891-1900, 3-282	„ *1927, 1-141
1901-1905, 2-660	„ 1928, 1-232
1906-1910, 2-450	„ 1929, -874
1911-1915, 2-424	„ 1930, -984
1916-1920, 1-607	„ 1931, 1-518
1921-1925, 1-303	„

* Diarrhoea over 2 years excluded

In this comparison only those infectious diseases that have been notifiable for most of the period given are included.

SMALLPOX AND VACCINATION.

Smallpox has not occurred in the city since the outbreak of 1920-21, apart from occasional importations through the port in 1924, 1929 and 1930. In view of the continued prevalence of smallpox of mild type in England, chickenpox is still notifiable. As regards vaccination, the following table summarises the result of procedure under the Vaccination Acts, and shows that about half the children are successfully vaccinated in infancy.

TABLE SHOWING RESULTS OF PRIMARY VACCINATION OF CHILDREN
BORN DURING SEVERAL YEARS.

(*From the Detailed Annual Reports of the Registrar-General.*)

Year.	Successfully vaccinated. Per cent.	Insusceptible of vaccine disease. Per cent.	Died before vaccination. Per cent.	Conscientious objection to vaccination. Per cent.	Vaccination postponed. Per cent.	Unaccounted for. Per cent.
1906	82.9	0.5	10.6	0.2	0.8	5.0
*	*	*	*	*	*	*
1914	51.7	0.9	12.1	25.1	1.8	8.4
*	*	*	*	*	*	*
1928	59.9	1.8	8.6	22.9	2.3	4.5
1929	53.9	3.7	8.1	27.1	1.6	5.6
1930	53.3	2.2	8.3	29.7	1.5	5.0

Vaccination.—The total number of infants vaccinated at clinics held at the Child Welfare Centres in the various districts of the City was 2,629 compared with 1,987 in 1930. The following table shows

the number of children vaccinated at the various centres during the past three years:—

STATEMENT SHOWING NUMBER OF INFANTS VACCINATED AT THE CHILD WELFARE CONSULTATIONS DURING THE YEARS 1929-1931.

Centre.	1929.	1930.	1931.
Public Health Office, ...	444	261	494
Garngad, ...	55	12	—
Port Street, ...	97	98	82
Maryhill, ...	190	153	223
Govan Town Hall, ...	100	108	123
Adelphi Street, ...	244	228	343
Partick, ...	116	143	142
Weir Street, ...	125	89	146
Bridgeton, ...	602	521	609
Shettleston, ...	207	254	303
Cowcaddens, ...	10	—	—
Elder Park, ...	102	88	104
Yoker, ...	—	—	—
Springburn, ...	15	32	39
Richard Street, ...	—	—	21
	<u>2,307</u>	<u>1,987</u>	<u>2,629</u>

VACCINATION (SCOTLAND) ACT, 1907.

The following shows the number of declarations of conscientious objection to vaccination made each year since the Act came into operation:—

1907-10 (annual average),	2,119	1927 ...	...	5,254
1911-15	5,922	1928 ...	...	5,560
1916-20	6,182	1929 ...	...	5,949
1921-25	5,318	1930 ...	...	6,385
1926	5,485	1931 ...	...	7,044

The number of conscientious objections to vaccination made during the year was 7,044, which is equal to 31 per cent. of the total births registered. This compares with 27 and 26, the respective figures for the years 1930 and 1929. Declarations of conscientious objection were made in respect of half the births in Fairfield, where the percentage of objections was 50. Other percentages were 46 in Govan and 45 in Springburn. The lowest number of exemptions occurred in Kelvinside with 14 per cent., followed by 15 per cent. in Langside. Particulars of these and other wards are contained in Appendix Table XXII.

TYPHUS FEVER.

Only one case of typhus fever occurred in the city during the year. The patient, a married woman aged 35 years, who had been ill since 14th January, received treatment at home until 24th January, when she was removed to a general hospital as a case of intestinal toxæmia, then to Ruchill hospital as cerebro-spinal fever where the true nature of her illness was recognised. She had a typical rash of typhus fever and a strongly positive Weil Felix reaction. She died in hospital on 29th January, three days after admission. No other definite cases of this disease occurred, but three children of the patient were found to be unwell when the house was visited and were removed to hospital for observation. It was not found possible to diagnose typhus fever in any of these cases. The Weil Felix reaction was negative in all, and no evidence of rash was seen.

An attempt to trace the source of infection proved unsuccessful. A boy, aged 3 years, the son of a family lodging with the patient, had been suffering from a rather vague illness associated with a rash some weeks previously. He had sickened on 16th December, 1930, and a diagnosis of measles had been made, but with apparently little justification. His Weil Felix reaction was negative. Previous to this illness he had been admitted to a large general hospital suffering from debility from 22nd November to 6th December. With a view to ascertaining whether the source of infection of the typhus fever case was in any way related to this hospital, the records of cases associated with the boy while he was in hospital were scrutinised and the homes were visited of all patients discharged from the ward during his residence there and for 21 days after his discharge. No illness suggesting a source of typhus fever was, however, obtained either among the patients in the ward or in their homes.

ENTERIC INFECTION.

There occurred during the year 112 cases of enteric infection. The following table shows the number notified and the number verified:—

			Enteric Fever.	Para- typhoid B.	Total.
Cases notified,	...	...	126	27	153
Cases verified,	...	...	66	46	112

Since the war years the figures have fluctuated between a minimum of 44 in 1925 and 148 in 1927 when there was a milk-borne outbreak of paratyphosis B. infection; and the figures for 1931 have only been exceeded on two other occasions during that period. Various groups are comprised within the 112 cases, notably a group of 23 cases (B. typhosus) suspected to be due to the eating of contaminated ice cream. Other groupings discovered include an institutional outbreak of eight cases of paratyphoid B., eight cases of B. typhosus case-to-case infection in one street in the South-Western Division, and several familial outbreaks, the largest affecting seven persons (B. typhosus).

Only 15 cases were considered to have been infected outside the city, one of these being an institutional case admitted for treatment of ovarian disease. The infection is suspected to have been imported from Ireland in six instances, from Rothesay in six instances, and in three instances from other parts of Scotland. The Rothesay cases were of paratyphoid B. infection, but four of these occurred in one family. On the other hand, four patients from outside the city were infected with paratyphosus B. during residence in an institution.

Type of Case.—The mortality rate was not high—8 per cent. Of the nine persons who died all but one were adults and four were over 60 years of age. In the familial outbreak affecting seven persons both the parents died, while all the children survived. Six persons died of B. typhosus infection, giving a case mortality of 9.1 per cent. Three persons died of paratyphosus B. infection, giving a case mortality of 6.5 per cent., but of these two were elderly, aged 62 and 74 respectively.

Geographical Distribution.—The south side of the city was again less affected than the north, only 36 cases (17 in the South-Eastern and 19 in the South-Western Division) occurring as contrasted with 76 on the north side. In the Northern Division (where the outbreak suspected to be due to contaminated ice cream took place) 41 cases were verified, 20 of these in Ruchill Ward and 11 in the adjacent ward of Maryhill. There were only seven cases in the Eastern Division throughout the year. Ten cases occurred in Ward 23 in the Central Division, but of these nine were institutional cases, including the persons affected in the outbreak referred to above. In nine wards no cases were registered.

Seasonal Distribution.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
B. Typhosus, 6	2	1	1	—	1	1	34	13	5	1	1		66
Para-typhosus B. 3	—	3	4	11	4	10	1	4	3	3	—		46
Total	9	2	4	5	11	5	11	35	17	8	4	1	112
	1st quarter			2nd quarter			3rd quarter			4th quarter			
	15			21			63			13			

The normal seasonal distribution with the heaviest incidence in the third quarter of the year is thus again illustrated.

Examination of Contacts.—The 112 verified cases were regarded as having a contact population of 337, 267 of these being over ten years of age. Examination of contacts in the first instance by means of the Widal test is increasingly in vogue, 168 persons having been examined by this method. 132 contacts were examined by bacteriological investigation of the urine and fæces. 15 associated cases, one chronic

carrier, and two contact carriers without any definite history of illness, were brought to light in the course of these investigations, seven of these persons giving positive results after examination of urine and faeces, while the other 11 were, in the first instance, discovered by means of the Widal test.

Carriers.—There are at present four known carriers in the city—two males and two females. One is a male of 40 years who was discharged from the army in December, 1928, as a persistent typhoid carrier, having contracted the disease in India. Examination during 1931 revealed that the faeces were still positive for *B. typhosus* while the urine was negative. Another male of 40 years sickened of paratyphoid B. in July, 1930, and was treated in hospital for three months. In December, 1931, the faeces were still positive while the urine was negative. Three contacts of this carrier have been inoculated. There are two female carriers. One is a woman aged 77 years who was discovered four years ago, but refuses to give specimens for examination. The other is a woman of 65 years who, in routine examination of the contacts of her grand-daughter suffering from *B. typhosus* infection, was found to have positive stools. She gave a history of an enteric illness 40 years ago.

Carriers in Hawkhead Mental Hospital.—At the end of December, 1931, there were 15 enteric carriers in Hawkhead Mental Hospital. 42 other patients gave a positive Widal reaction but these have not been demonstrated to be carriers. No cases of enteric infection occurred in the institution during the year 1931. No cases have, in fact, occurred in the institution since in 1927 the routine was inaugurated of subjecting all new cases to a Widal test followed by segregation and repeated examinations of urine and faeces of those giving a positive reaction.

Institutional Cases.—19 cases were registered from institutions, five of these being nurses. One of these nurses had been working in an enteric ward and another had been nursing cases of paratyphoid disease in a ward of a general institution. Of 11 of the 19 cases it was concluded that they had been infected before admission.

An institutional outbreak involving eight cases of paratyphoid fever falls to be recorded in a female surgical ward of a large general hospital. The probable source was a female patient who was admitted as a doubtful case of appendicitis and had run a remittent fever since admission to the hospital, but had subsequently showed no evidence of appendicitis or other abdominal abnormality on operation. She proved to be a case of paratyphoid fever. The spread of the infection was believed to have been caused by enemata administered to the patients every second night and by the use of rectal thermometers for recording temperatures. A night probationer who had charge of these patients was infected.

B. Typhosus Outbreak Suspected to be due to Ice Cream.—During the latter half of August and the beginning of September, 1931, the number of cases of enteric fever in the Northern District of the city rose considerably, most of them being confined to a housing scheme in Ward 19. The only common factor was the partaking of ice cream from the same itinerant vendor.

There were 23 cases who all gave a history of having partaken of the suspected ice cream, and of that number ten were children under the age of 10, two were under 15, and the rest were above that age. Only two of the cases could definitely be suspected of being secondary to the primary case, but they also had partaken of ice cream. All patients were removed to hospital and there were no fatal cases.

On examination the itinerant vendor was found to give a positive blood reaction of 1 in 250 to *B. typhosus*. On suspicion he was removed to hospital, and although specimens of fæces and urine were taken daily over a comparatively prolonged period, no typhoid organisms were found. The blood reaction remained positive with little alteration until early in 1932, when it rose to 1 in 500, fæces and urine still remaining negative. He had been inoculated while in the Italian Army during the war, but the Bacteriologist considered it an unusually high titre to be due to prophylactic inoculation.

Group of Eight Cases in One Street.—Eight cases of *B. typhosus* infection occurred in one street in the South-Western Division over a period of three weeks in August and September, 1931. Five cases were in one family and other three in separate families. The first case to be detected was a girl of 12 years, who, with her brother, aged 19 years, had been admitted to a general hospital. The brother also was subsequently found to be suffering from enteric fever. Examination of the other members of the family (seven in number) discovered three other cases—the mother, aged 44 years, a girl of 23 years, and a boy of seven years. The sixth case, a boy of 16 years, was admitted to hospital as a case of pneumonia, and was found to be suffering from enteric fever. Enquiry revealed an association between this case and the first affected in the person of a fruit hawker of 24 years, who was a close friend of both parties. This man also was found to be ill and his blood, on examination, gave a positive Widal reaction. The remaining case was a girl of five years, who lived in the property immediately adjacent to that in which the infected family resided. The back court was common to the two properties and enquiry showed that children of the two families had played together.

The milk supply was not common, and the spread of the disease was considered to be adequately explained by case-to-case infection. The original source of the infection, however, was not discoverable. Twenty-eight other persons were examined in connection with the outbreak, but no other cases were detected.

Familial Outbreaks.—The outbreak described above suspected to be due to ice cream includes an instance of three infected persons in

one family, and four instances of two persons in one family. In the immediately preceding paragraph reference has also been made to five cases of *B. typhosus* infection in one family. In addition, there were eight other instances where more than one case occurred in one family—seven in one instance, five in another, three in another, and four families where two persons were infected.

Commencing on 10th August, seven members of a family living in an old and crowded tenement, comprising 16 inhabited one-roomed houses with six W.C.s, sickened of enteric (*B. typhosus*). Their ages in order of sickening were as follows (the interval between dates of sickening of consecutive cases is interpolated between brackets): 4 years (7 days), 10 years (14 days), 32 years (4 days), 15 years (7 days), 40 years and 5 years (5 days), 3 years. The remaining child, aged $1\frac{1}{2}$ years was not infected. The mother, aged 32, was the first case of enteric to be detected, 15 days after sickening. She was transferred to a fever hospital from a general institution on the day of diagnosis, the others being removed from home within the ensuing 48 hours. The infected family had shared a W.C. with eight other adults. Of the remaining population of the tenement numbering 51 (13 under 10 years), the blood of 43 and the faeces of other six were examined. The derivation of the group was not discovered, however, nor were further cases traceable to it. The mother died in the fifth week of her illness, predeceasing her husband by two days.

A familial infection of paratyphoid fever occurred among two families living together in a three-apartment house, consisting of two brothers who married two sisters, each family having an infant daughter. One male, two females, and two children were infected. The two adult females were contact carriers only, and gave no history of having any definite illness. The source was not discovered, but presumably lay in an outwith county.

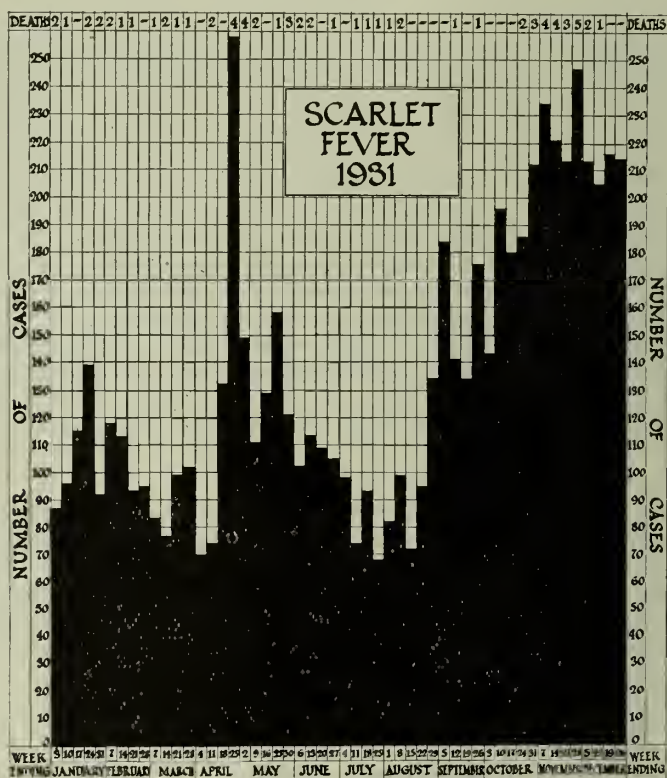
The following table of death-rates since 1881 shows the marked decline which has taken place:—

1881-90,	...	·230 per 1,000	1926,	...	·015 per 1,000
1891-1900,	...	·215 „	1927,	...	·009 „
1901-10,	...	·127 „	1928,	...	·009 „
1911-15,	...	·058 „	1929,	...	·006 „
1916-20,	...	·023 „	1930,	...	·009 „
1921-25,	...	·058 „	1931,	...	·010 „

SCARLET FEVER, 1931.

During the year 1931 the incidence of scarlet fever increased very markedly and gave rise, particularly throughout the autumn, to considerable administrative problems. Hospital accommodation was taxed to its utmost, and the home treatment of cases had to be carried out under conditions which were not always considered favourable. Some of the salient features of the epidemic will be considered in this

report. The total number of cases notified in the city during the year was 7,020 and of these only 69 were fatal, which indicates that the disease was of a mild type although highly infectious. The following diagram shows the weekly incidence of cases.



The chief wave of incidence occurred during the autumn and winter months. Usually this annual increase reaches its maximum in November and thereafter falls, but the expected lull did not occur in the 1931 epidemic, on the contrary, the cases steadily increased. During January and February the disease was more prevalent than usual, as it had also been throughout the latter part of 1930. This was followed by a comparatively quiescent period during March and April. Then a sudden outbreak occurred at the end of April in the Partick district of the city, due to an infected milk supply. There was a second quiescent period during July and August, when the schools were closed, but even then the number of cases was considerably higher than usual at this time. Apart from the sudden outbreak referred to, the distribution of cases was generalised throughout the city. The age incidence of cases is shown in the following table:—

INCIDENCE OF SCARLET FEVER DURING 1931 IN AGE GROUPS.

					Hospital Cases.	Home Cases.	Total.	
							Male.	Female.
— 1 year,	...	...	...	...	40	18	31	27
— 2 years,	...	...	...	...	190	21	102	109
— 5 ,,	...	...	...	...	1,382	152	729	805
—10 ,,	...	...	...	...	2,594	331	1,299	1,626
—15 ,,	...	...	...	...	981	169	468	682
—20 ,,	...	...	...	...	372	59	155	276
—25 ,,	...	...	...	...	214	44	91	167
—35 ,,	...	...	...	...	257	55	112	200
—45 ,,	...	...	...	...	74	24	42	56
—55 ,,	...	...	...	...	16	10	10	16
—65 ,,	...	...	...	...	7	8	5	10
+65 ,,	...	...	...	...	2	—	—	2
Totals,					6,129	891	3,044	3,976

Hospital Cases.—Of the total 7,020 notified cases for the year, 6,129 were admitted to the various fever hospitals and 891 were treated at home.

Secondary Cases related to Cases treated in Hospital.—A secondary case is considered to be one which sickens within 14 days of the removal to hospital of the primary case, and within 14 days after disinfection when the case is being treated at home. The number of secondary cases in the former category was 508 or 8·3 per cent. of the cases removed. Where delay in removal of the primary case to hospital occurred there were in all 141 secondary cases. On the other hand, where no delay occurred there followed 367 secondary cases. These figures refer to the year as a whole. During the fourth quarter of the year, when the epidemic was increasing, 2,111 cases were admitted to hospital and associated with them were 213 secondary cases, which gives for this period the somewhat higher figure of 10 per cent. It was during this period that a waiting list was established, cases delayed in removal and many treated at home. There was no delay in removal before October. In the course of the preceding three-quarters of the year, 3,980 cases were admitted to hospital and associated with these were 295 secondary cases, or 7·4 per cent. It can be concluded, therefore, that approximately 2·6 per cent. of the secondary cases associated with those removed to hospital was due to delay. It has also been ascertained that of the 141 secondary cases associated with delay in removal of the primary case 94 occurred in overcrowded houses and 47 where there was no overcrowding. The following table shows the distribution of these secondary cases in relation to housing and overcrowding:—

DISTRIBUTION OF SECONDARY CASES IN RELATION TO HOUSING AND OVERCROWDING.

				Overcrowded.	Not Overcrowded.	Total.
1 Apartment,	...	...	...	15	—	15
2 Apartments,	...	...	...	66	13	79
3 Apartments and over,	...	...	...	13	34	47
Grand total,	...	...	...	94	47	141

Where there was no delay in the removal of the primary case, 259 of the cases occurred where there was overcrowding and 108 where the accommodation was satisfactory.

Home Cases.—The total number of cases treated at home throughout the year was 891, and associated with these primary cases there occurred 67 secondary cases, or 7·2 per cent. As already mentioned the scarlet fever waiting list had to be established in October, and was continued throughout the remainder of the year. During October the average daily number awaiting admission was 32, in November 52, and in December 59, and from these the cases were selected for hospital, such factors as housing and poverty being taken into consideration. Some of the home cases, however, had to remain under conditions which were not considered satisfactory. Of the total 67 secondary home cases 28 occurred where there was overcrowding and 39 where the conditions were favourable. It would appear that home treatment of scarlet fever under conditions not altogether favourable was not responsible for a high proportion of secondary cases.

It should be noted that the percentage of secondary cases associated with primary cases treated at home was 7·2 compared with 8·3 associated with cases removed to hospital. The observations made during the epidemic of 1931 suggest that home treatment and delay in hospitalization of the present mild type of scarlet fever did not materially contribute to the continuance or magnitude of the general epidemic in the city. A good deal of caution will, however, be necessary in applying a more general policy of home treatment under existing housing conditions.

Hospital Return Cases.—A hospital return case is one which sickens within 28 days after dismissal of a case which has been treated in hospital. It was found necessary during the autumn and winter to curtail, as far as was reasonably possible, the duration of the treatment period in hospital. Throughout the year, 5,920 cases were dismissed from hospital and associated with these were 209 return cases, or 3·5 per cent. The number dismissed during the last quarter was 2,028, which gave rise to 89 return cases, or 4·4 per cent. Of the total 209 hospital return cases, 127 occurred in cases returning to overcrowded home conditions, and 82 where there was no overcrowding. The following table shows the percentage of return cases during the last quarter when the pressure on the hospitals was at its greatest, and also the relation of the return cases to overcrowding.

HOSPITAL RETURN CASES.

	Total Cases dismissed from Hospital.	Return Cases.	Per cent.
Whole year,	5,920	209	3·5
Last quarter of 1931,	2,028	89	4·4

HOSPITAL RETURN CASES IN RELATION TO PERIOD IN HOSPITAL AND OVERCROWDED HOME CONDITIONS.

No. of Days in Hospital.	Total Cases Dismissed.	Return Cases.	Per cent.	Home Conditions.	
				Over-crowded.	Not Over-crowded.
—28	600	30	5.0	3.0	2.0
—35	743	29	3.9	3.1	0.8
—42	279	9	3.2	1.5	1.7
+42	406	21	5.1	3.4	1.7

It is interesting to note that associated with 406 cases dismissed during October, November and December, and which had been in hospital for more than six weeks there were 21 return cases, or 5.1 per cent., compared with 600 cases dismissed during the same period, after being in hospital for less than four weeks, which gave rise to 30 return cases, or 5 per cent. The majority of the cases kept in hospital over six weeks suffer from the complications of the disease, and probably remain a reservoir of infection for some time after dismissal from hospital.

SCARLET FEVER IN GILSHOCHILL INDUSTRIAL SCHOOL.

Gilshochill Industrial School is a school run by the Glasgow Education Department for girls whose home conditions are unsatisfactory or who themselves require more careful attention than their parents are fit to give. The girls live in the school all the time but their parents are allowed to visit fortnightly.

From time to time it has been subject to outbreaks of scarlet fever. The last one commenced in July, 1931, when there was one case, followed by nine cases in August, 1931. The school was visited and all the children inspected, but no case of desquamation was found, although there were several children with sore throats.

As this school was more or less a closed community it was thought that it formed a convenient centre for active immunisation, and all the pupils and the older girls who acted as maids—118 in all—were Dick tested on the 9th September, 1931. Of that number 22 were found to give positive reactions and one had a pseudo reaction. Of the 22 positives, 21 were immunised, the first inoculation being 1,000 skin test doses given intramuscularly into the left arm on the 11th September, 1931, and the second dose being 5,000 skin test doses given on the 23rd September, 1931, that is, at a 12 days' interval. After the first inoculation seven of the patients had no untoward symptoms, eight of them had a slight rise of temperature on the day following to 99° F. or 99.4° F., three of the patients felt their arm very painful and had a temperature which was over 100° F. and in one case was 101.8° F., two other patients had a faint rash and felt very drowsy, and the remaining patient had a headache and sore throat, with a temperature of 102° F.

The second inoculation produced much fewer disturbances. In one case the temperature was 101° F., and in other three cases the temperature was between 99 and 100° F. On the whole the reactions were very much less than might be expected, and did not upset the patients unduly.

From September, 1931, until retesting in March, 1932, there were no cases of scarlet fever in the school although in the surrounding districts and in the city generally the numbers suffering from scarlet fever were larger than they had been for many years. On retesting the patients who had previously given positive reactions it was found that one case who had given a +++ in September, 1931, was now a ++; one who had been a +++ was now a +; and one + remained unaltered, that is to say, that only three positive reactions remained after protective inoculation. To this must be added the case who had not been immunised owing to the poor general condition in September, 1931, and also must be subtracted the case who had been immunised but had got home before retesting. The position is summarised in Table I. and detailed in Table II.

COUNTY SCARLATINAL OUTBREAK ORIGINATING IN MISSED CASES OF SCARLET FEVER ON A GLASGOW FARM.

There had been reported nine cases of scarlet fever from the village of Thornliebank between 30th December, 1930, and 13th January, 1931. This village has a population of nearly 3,000, but during the two preceding years only one case of scarlet had occurred. Six of the cases had been pupils at Thornliebank School, which has a roll of 382 and is the only school in the village, and eight of the cases had a milk supply from one retailer selling 60 to 70 gallons per day, supplied by a Glasgow farm at the shop.

No definite source of infection was found, although it had been considered suggestive that in seven instances the milk had been carried by one boy. A visit was then paid to the supplying farm in the contiguous Glasgow ward of Pollokshaws, and 16 persons were examined. The farmer's daughter, aged 17 years (employed in the city), was found to show scarlatiniform desquamation, and was removed to hospital as a case of scarlet fever. She had sickened on the 25th December, had been ill, and there was a history of a rash. In addition her brother, aged 21 years (not a farm employee), and the farmer himself, aged 58 years, showed redness of the throat and gave histories of having sickened with sore throat on the 4th and 10th of January respectively. The two men were removed to an observation ward in a fever hospital. (No definite evidence of scarlet was found in these two persons, and they were dismissed on the 19th January, but were requested not to work or handle milk or milk utensils for 14 days thereafter). Another daughter, a schoolgirl aged 9 years was considered to be suffering from chronic rhinitis and pharyngitis, although a nasal swab yielded hæmolytic streptococci.

Appropriate disinfection was carried out and it was only found necessary to stop the milk for the evening of the 14th and the morning of the 15th January.

While these measures were being carried out another case was reported in Thornliebank, but the feature of interest is the way in which the scarlatinal infection continued to proceed in the village from the momentum previously imparted to it. Up till 2nd February, nine further cases were reported, only two of these being pupils at Thornliebank School. A sister and a brother residing within the Glasgow boundary, but attending Thornliebank School, also sickened of scarlet on the 13th and 24th of January respectively, while on the 5th of February another pupil aged 9 years, a daughter of the farm ploughman, contracted the disease. This last mentioned girl was considered to be the source of the infection of a child, aged 2 years, who sickened on 9th February, and who lived in an adjacent cottage on the farm. During the remainder of 1931, only four cases were reported in the village, one in each of the months of March, April, June and September.

The death-rate from this disease since 1881 is shown in the following table:—

1881-90,	...	·490 per 1,000	1926,	...	·083 per 1,000
1891-1900,	...	·295 "	1927,	...	·040 "
1901-10,	...	·116 "	1928,	...	·031 "
1911-15,	...	·163 "	1929,	...	·037 "
1916-20,	...	·060 "	1930,	...	·038 "
1921-25,	...	·065 "	1931,	...	·068 "

DIPHTHERIA.

Compared with scarlet fever, the incidence of diphtheria has been much more favourable. During 1931 the case rate per million of the population was 1,937, compared with 2,407 for the preceding year, and is the lowest recorded since 1925. The cases registered numbered 2,108, of which 2,055 were treated in hospital. This is equal to 97 per cent. which is little below the usual proportion so dealt with for a considerable number of years.

The reduced incidence cannot be ascribed to differing age of attack, as the proportionate distribution of the cases is somewhat similar to that of scarlet fever. About 25 per cent. of the cases occurred at ages from five to ten years, and nearly 40 per cent. from ten to fifteen years, altogether 65 per cent. at school ages.

The deaths registered during 1931 numbered 119, representing a mortality rate of 5.6 per cent., compared with 5.5 per cent. in 1930.

The following table shows the death-rates per 1,000 living since 1881:—

1881-1890,	·280 per 1,000 living.	1921-25,	·123 per 1,000 living.
1891-1900,	·231 " "	1926,	·121 " "
1901-1905,	·134 " "	1927,	·104 " "
1906-1910,	·205 " "	1928,	·128 " "
1911-1915,	·187 " "	1929,	·124 " "
1916-1920,	·143 " "	1930,	·133 " "
		1931,	·109 " "

ERYSIPELAS.

The increasing prevalence of erysipelas since 1927 was checked in 1931, when 1,097 cases were registered, compared with 1,259 during the preceding year. Comparing the case rates per million of the population, it is found that the increasing incidence of erysipelas began in 1928, or two years prior to the present exceptional rise in the incidence of scarlet fever. Affections caused by a streptococcus, such as scarlet fever, erysipelas and puerperal fever, have shown similar tendencies in recent years, as is indicated by the rates per million of the population for these three diseases. Possibly, this common behaviour is merely a matter of coincidence.

			Puerperal Fever.	Scarlet Fever.	Erysipelas.
1925,	...	...	273	3,472	913
1926,	...	...	279	4,252	922
1927,	...	...	254	3,777	778
1928,	...	...	379	2,971	846
1929,	...	...	474	3,079	1,008
1930,	...	...	549	4,555	1,156
1931,	...	...	609	6,449	1,008

The seasonal incidence of erysipelas is given in Appendix Table XIX., which indicates the usual reduction in the summer period of the year, with a rise to a maximum during one or other of the winter months.

DISEASES OF THE CENTRAL NERVOUS SYSTEM.

Cerebro-Spinal Fever.—During the year 182 cases of cerebro-spinal fever were recorded, against 148 in 1930. This indicates some recrudescence of the disease, which showed an increased prevalence in 1929, when its features were dealt with in detail. Most of the cases

occurred in the early part of the year, 112 being recorded in the first six months, as against 70 in the second six months. The highest number occurred in April, when 28 cases were recorded. This seasonal distribution of cases of cerebro-spinal fever is similar to that in 1929, when the predominance in the colder part of the year was even more pronounced. The deaths numbered 129 which is equivalent to a rate of 119 per million of the population, compared with 85 for the preceding year, and 140 in 1929.

Encephalitis Lethargica.—Ten cases of encephalitis lethargica were registered, compared with 32 during the preceding year.

Acute Poliœncephalitis.—No case of this disease was registered during 1931, against three registered during the preceding year.

Acute Poliomyelitis.—Only four cases of this disease were registered in 1931, compared with 23 registered in 1930. All were removed to hospital.

POST ENCEPHALITIS LETHARGICA.

The cases of post encephalitis lethargica reported upon mostly originated during the epidemic of 1923-24, and still give rise to a difficult administrative problem. Acute cases continue to be reported, but their diagnosis is extremely difficult. There still remain in Glasgow 420 patients, of whom 248 are males and 199 are females. At the end of 1930, there were 475 cases. The diminution in numbers since then has been accounted for by deaths, cases which have gone away from the city, and a small number untraced. During 1931, 23 died (12 males and 11 females). There were 11 chronic cases notified for the first time, and 2 acute cases which have been accepted as such. The age distribution is as follows:—

			Males.	Females.	Total.
—15 years,	...	...	27	18	45
—20 „	...	...	53	25	78
—30 „	...	...	79	71	150
—40 „	...	...	41	31	72
+40 „	...	...	48	27	75
Total,	...		<u>248</u>	<u>172</u>	<u>420</u>

The majority of the cases, 321, are being cared for in their own homes, although a very large proportion of them have received institutional treatment from time to time.

There have been no instances of chronic cases giving rise to secondary cases, and no proof exists among the Glasgow cases that the chronic stage of encephalitis lethargica is infectious. An investigation

into the condition of the home cases was made towards the end of the year and the result of this enquiry is as follows:—

	Males.	Females.	Total.
Fit for school,	9	9	18
Unfit for school,	2	1	3
Fit for housework,	—	68	68
Fit for employment,	80	27	107
Unfit, but going about,	71	32	103
Bedridden,... ..	17	5	22
Total,	179	142	321

There is, therefore, a very considerable number of the home cases who are comparatively fit, and able to lead a reasonably normal life. Those who retain a degree of fitness are estimated at 193 compared with 106 who may be considered unfit but able to go about to some extent. There are also 22 bed-ridden cases at home, who are quite helpless and are the remaining examples of the devastating effects on the nervous system of the original infection.

There are in the special wards for this disease in Stobhill Hospital, and scattered throughout other institutions 99 cases (54 males and 45 females). Of this total 75 are in Stobhill (36 males and 39 females). In last year's Annual Report the slow turnover in the number of cases admitted and dismissed from these wards was commented upon, and again attention may be drawn to this fact. There is the utmost difficulty in achieving the dismissal of patients from Stobhill at the end of the course of medical treatment. Of the 36 males in Stobhill at the end of 1931, 22 have been in this ward for periods ranging from one to six years, and of the 39 females, 24 have passed a period varying between one and seven years. These wards cannot now be regarded as being specially devoted to the investigation of the medical treatment of the disease, as they have become wards for the housing of the infirm cases indefinitely. It is to be regretted that a more rapid turnover of cases cannot be achieved. In many cases the dismissal of the helpless type of patient to small and rather crowded houses would only create another problem outside.

MEASLES.

Measles was again exceptionally prevalent, and the increasing incidence occurring in the early autumn rose rapidly to a maximum by the end of November. As the last epidemic took place mostly in the spring of 1930, the case rate per million of the population, given in Appendix Table XVIII., shows a heavy prevalence in two consecutive calendar years. The largest number of cases in the last epidemic occurred in February, 1930, so that there is only a period of 21 months between the two maxima.

The case rate per million of the population in 1931 was 14,123, compared with 11,393 for the preceding year, so that the disease

was more prevalent in 1931 than it has been since 1926, when the case rate was 14,630. Altogether there were 15,372 cases, of which 1,784 were treated in the fever hospitals, while 15 were treated in other institutions. Almost all the cases occurred at ages under ten years, half of which were under five years, and the other half between five and ten years.

The disease first became evident in Provan, Partick, Kingston and Kinning Park Wards, and it was in these latter districts that the epidemic persisted in considerable volume, whence it afterwards spread to all districts of the city, before the end of the year. The largest number of cases occurred, as usual, in the wards with large populations of children of susceptible ages.

The deaths numbered 416, which is equivalent to a rate per million of the population of 382, which compares with 244 in 1930.

During the year, considerable use was made of convalescent serum for preventive purposes in the fever hospitals, in children's residential homes and elsewhere, with very decided success. Dr. Hunter, at Knightswood Hospital, prepared the serum in sufficient quantity to deal with such incidents as arose in the various institutions, and administered it personally. A full account of this work will appear later, but it may be said that preventive inoculation has been the means of protecting children exposed to infection under circumstances which have formerly led to serious administrative difficulty in children's homes and in cross infected wards.

German Measles.—There were fewer cases of german measles in 1931, only 115 being recorded, representing a case rate of 106. The case rate in 1930 was 154, and in 1929, 139.

WHOOPING-COUGH.

Whooping-cough was also more prevalent, the incidence being greatest at the beginning of the year, and remaining heavy until June. The case rate per million of the population, given in Appendix Table XVIII., was 8,470, whereas the corresponding rate in 1930, was 5,315. The previous highest rate, 9,168, occurred in 1927. Like measles, the incidence was widespread throughout the wards, but Govan Ward in the south-west with 717 cases, and Provan Ward in the north-east with 563 cases, were much more heavily affected than any of the other wards. The heavy prevalence occurred in the first quarter of the year, when respiratory complications often supervene. The fatality was also high, 464 deaths being recorded. This is equal to a death-rate of 426 per million of the population, against 207 during the preceding year, and is also considerably in excess of the mortality for 1927, when the case incidence was greater.

Cases registered totalled 9,219, and of these 890 were removed to hospital.

The high prevalence of both measles and whooping-cough in 1931 has adversely affected the infant mortality rate and the general death-rate.

CHICKENPOX.

Owing to the continued prevalence of smallpox south of the border, compulsory notification of chickenpox was again continued by the Department of Health for Scotland. A larger number of cases was recorded, 7,719, which compares with 7,205 in 1930. The incidence has remained uniformly heavy during the past five years. The case rate per million for 1931, compared with previous years, is given in Appendix Table XVIII., and the monthly incidence in Table XIX. The disease, as usual, was more prevalent during the colder months in the early part of the year, and almost all the cases occurred in children under ten years of age.

OTHER INFECTIOUS DISEASES.

A record of the other infectious diseases dealt with, together with the number of each treated in hospital, is given in Appendix Table XVII. Among these is included ophthalmia neonatorum, and various forms of pneumonia, which are dealt with in other sections of the Report; there remain certain other diseases which are here briefly referred to.

ANTHRAX.

One case of anthrax occurred in January. The patient, a young woman, was a wool worker in the carding department of a carpet factory. The site of the pustule was on the shoulder, probably caused by infected wool on one of the spindles which she had been carrying.

No case of animal anthrax was reported during the year.

The practice of binding orange boxes with goatskin thongs still continues. Three out of twenty-one samples submitted for bacteriological examination during the year were found to be affected with the bacillus of anthrax, and the matter was reported to the Department of Health for Scotland.

DIARRHŒA AND ENTERITIS.

The mortality from these diseases at ages when they are most fatal is given in the following table covering the past five years :—

AGE IN YEARS.					
			-1	-5	5+
1927,	...	...	277	83	70
1928,	...	...	288	66	41
1929,	...	...	243	57	56
1930,	...	...	245	57	53
1931,	...	...	279	38	42
					Total.
					430
					395
					356
					355
					359

The table which follows shows the mortality in each month of the year, and is of more than usual interest because the fewest deaths occurred in August, which was the warmest month. In former years the mortality usually increased under such conditions.

DIARRHŒA AND ENTERITIS.

Month of Death.	Number of Deaths -1 Year.	Mean Temp.	Month of Death.	Number of Deaths -1 Year.	Mean Temp.
Jan., ...	13	37	July, ...	16	58
Feb., ...	20	37	Aug., ...	13	57
March, ...	26	37	Sept., ...	29	51
April, ...	23	45	Oct., ...	30	47
May, ...	21	50	Nov., ...	33	44
June, ...	29	53	Dec., ...	26	42

The mortality in the first part of the year was probably associated with digestive disturbances caused by whooping-cough, and in the later months by measles.

RABIES.

No case of rabies is known to have occurred, but a number of persons bitten by dogs were reported by the police for inquiry. These are shown in relation to the season of occurrence and the severity of the bite:—

					Slight.	Serious.
1st Quarter, ...	...	...	...	...	45	3
2nd ,, ...	...	...	...	...	100	4
3rd ,, ...	...	...	...	...	110	8
4th ,, ...	...	...	...	...	47	3
					302	18
					320	
1930, ...	274	1929, ...	273			

In addition to the above, two persons were bitten by horses, and two bitten by cats.

TRACHOMA.

The number of cases of definite trachoma on the register at the end of 1931 was 143, a further 15 cases being considered as "doubtful." The number of new notifications received during the year was 32, and of these 25 were definite cases, 3 were "doubtful," and 4 were not trachoma. During the year, 22 cases were removed from the register. Of these, 6 were found not to be suffering from trachoma, 14 were considered cured, and 2 died. There were also taken off a further 15 cases, as regards which, since the end of 1928, no information was available. Every endeavour was made to obtain the attendance of home contacts of new cases at the dispensary. Of the 34 home contacts examined, 5 were shown to be suffering from definite trachoma, 1 was "doubtful," and 14 suffered from varying degrees of conjunctivitis, while 14 were negative.

Trachoma Clinic.—Dr. A. L. M'Millan, the ophthalmologist in charge of the dispensary, reports that the disease continues to be insidious in onset, the majority of cases being chronic and not acute trachoma. During the year, 170 individuals attended the clinic, the

total number of attendances for the year being 3,339. Of these, 1,424 were consultations with the ophthalmic surgeon, and 1,915 were for treatment by the nurse. Eight operations for expression and two of cautery were carried out at the clinic. The number of home visits paid by the trachoma nurse was 664.

Hospital Treatment.—35 cases of trachoma were admitted to Stobhill Hospital during the year. Of these, 25 were first cases, and 10 were re-admissions. The operations carried out were as follows:—Expressions 27; Peritomy 9; Peridectomy 1; and Entropion 1.

Dr. S. Spence Meighan, the ophthalmic surgeon in charge of the cases at Stobhill Hospital has furnished the following note:—

“Trachoma cases are isolated in side rooms, one for males and one for females. These are self-contained as regards bathing and lavatory accommodation. Outdoor exercise is encouraged as part of the treatment. Cases are for the most part referred from Dr. McMillan's dispensary at Adelphi Street, and the diagnosis is generally established before admission. A division into three main types can be made (1) Early cases, being composed mostly of children and young adults; (2) the type which has been going on for some time and is recurring; and (3) late cases which are referred for the operative correction of some lid deformity which has occurred as a result of the disease.

“Early cases are the most satisfactory from all standpoints. Without exception the cases in this category have responded well to treatment, and have been dismissed cured so far as one can claim a cure in this disease. The recurring cases have been the most disappointing, as might be expected. As regards late cases referred for lid operation, treatment is not as a rule for trachoma, but for a condition which is a direct result of this disease. Good results have been obtained in the relief of deformity, pain and discomfort.

“Treatment of trachoma must necessarily be of many kinds as there is no established cure of the disease. Expression of the lids under a general anæsthetic, followed by mild antiseptic lotions and copper sulphate, if necessary, has been found to be the most efficacious. Carbon Dioxide Snow applications have been made and, although this form of treatment has a definite niche in the therapy, it is not a cure. Ultra-violet light has been applied locally by means of Quartz Rods, and has been disappointing. Its value is in general applications to the body as a tonic. Various forms of copper are always being utilised and the value of this salt is firmly established. Cases are dismissed to the Adelphi Street dispensary, and this work is most valuable in following up the results and continuing treatment. Work is in progress of being carried out with regard to the bacteriology of the disease, but this need only be mentioned at this stage of investigation.”

MALARIA AND DYSENTERY.

Malaria was registered in 13 cases, but only one required to be removed to hospital.

There were 79 cases of dysentery (46 under five years of age), of which 49 were treated in fever hospitals, and four in other institutions. This is an increase of five over the number registered during the preceding year. Cases were more numerous in the early months, and the largest number recorded in any one ward was fourteen in Fairfield, followed by nine in Provan. Forty-six occurred at ages under five years, most of them being males.

INFECTIVE JAUNDICE.

This disease remains notifiable until the end of the year 1932. No case was reported during 1931.

SECTION V.

RESPIRATORY DISEASES AND TUBERCULOSIS.

The year 1931 was comparatively favourable as regards respiratory diseases. The case incidence was 5,062 for all forms of pneumonia, compared with 6,214 for the preceding year and 7,551 in 1929. The winter of 1930-31 was comparatively mild though the somewhat colder spring weather caused the incidence for the three months, February, March and April, to be rather accentuated, 1,940 cases of acute primary pneumonia and acute influenzal pneumonia being notified, out of a total of 5,510 for the whole year, with 357 of influenzal type. Of the total registered, 3,104 cases of pneumonia and 173 of influenza were removed to the fever hospitals, and 485 and 17 respectively to other institutions. The proportion dealt with in institutions was thus 69 per cent. compared with 61 per cent. during the preceding year. The following table shows the increasing demand for hospital accommodation since 1919, when compulsory notification began:—

Year.	Cases Notified.	Percentage to Hospital.	Year.	Cases Notified.	Percentage to Hospital.
1920	4,533	38	1926	6,704	55
1921	3,592	46	1927	6,252	58
1922	6,572	43	1928	6,072	66
1923	4,465	60	1929	8,225	58
1924	7,272	54	1930	6,765	61
1925	6,105	59	1931	5,510	69

For a period during the year it was not possible to meet the demand on accommodation and the usual practice of home visitation, nursing and selection of cases was again adopted. The bearing of pneumonia on the whole question of hospital beds was dealt with in a memorandum to the Committee on Health, which is reproduced in Part II. of this Report on pages 280-290. The high mortality in young and old people has been referred to in the section on vital statistics. Apart from this it may be remarked that the incidence of tuberculosis among children appears to be related to the periodic occurrence of respiratory diseases, and of measles or whooping-cough, both of which are frequently complicated with pneumonia.

Pneumonia.			Influenza.		Other Respiratory Diseases.	
Year.	Deaths.	Rate per million.	Deaths.	Rate per million.	Deaths.	Rate per million.
1922, ...	2,303	2,143	767	714	1,477	1,374
1923, ...	1,400	1,303	65	61	972	905
1924, ...	2,198	2,047	412	384	1,283	1,195
1925, ...	1,665	1,551	210	196	1,098	1,023
1926, ...	1,758	1,612	386	354	967	887
1927, ...	1,792	1,644	204	187	881	808
1928, ...	1,801	1,653	210	193	813	746
1929, ...	2,447	2,247	878	806	1,212	1,113
1930, ...	1,774	1,629	160	147	852	782
1931, ...	1,533	1,408	207	190	671	617

The highest death-rate from pneumonia, 2,494 per million of the population, occurred in Exchange, a district of the city with a considerable number of lodging-houses, where also the death-rate from bronchitis was heavy, the rate being 926. The same observation applies to Calton Ward, where the bronchitis rate was the same, and the tuberculosis death-rate 1,914. Generally it may be said that the mortality from the respiratory diseases is heaviest in the congested districts of the city, such as Mile-end, Dalmarnock, Cowcaddens, Hutchesontown, Gorbals and Kingston, where the rates are all around 2,000, compared with rates of around 400-600 in good residential districts, such as Pollokshields, Camphill and Cathcart.

Investigations into pneumonia are proceeding in the hospitals with special reference to treatment by serum and to the elucidation of the rôle played by the various types of pneumococcus, their seasonal incidence, virulence and other characteristics. The question of the carrier is also being studied. This work is being pursued in a unified manner in collaboration with the Royal Infirmary bacteriological department under Dr. Cruickshank and with the valuable assistance of Dr. John M. Cowan.

TUBERCULOSIS.

The number of cases of pulmonary tuberculosis registered during the year 1931 was 1,702 compared with 1,687 during the preceding year. At the close of the year there remained under observation a total of 5,761 patients. The annual number of cases registered since 1913 is given in the following table:—

Year.	Cases Registered.	Year.	Cases Registered.
1913-1915 (annual average),	2,425	1926 (Old City), ...	1,732
1916-1920 ,,	2,410	1926 (Added Area),	63
1921,	2,045	1927,	1,623
1922,	1,954	1928,	1,724
1923,	1,725	1929,	1,804
1924,	1,829	1930,	1,687
1925,	1,600	1931,	1,702

Cases Registered during 1931.—Of the total number of cases registered during the year, 1,547 were notified in terms of the Infectious Diseases (Notification) Act, 1889, and Tuberculosis Regulations, 1912. Five were sent by the Pensions and Military Authorities, while 150 were ascertained from other sources, as shown below:—

1. *Source of Notified Cases*—

1. Occurring in private practice, 1,037
2. Occurring in public practice:—
 - (a) Public Assistance cases at home addresses, 19
 - Public Assistance cases from hospitals and institutions, ... 148
 - Public Assistance cases at Dispensaries, 7

	<i>Brought forward,</i>	174	1,037
(b) Charitable dispensaries and infirmaries,	154		
Corporation dispensaries,	... 182		
		336	510
Total cases notified,	... ..		<u>1,547</u>

2. *Source of information in cases not notified—*

(a) From admission and dismissal sheets of			
Public Assistance Institutions,	... ..	8	
(b) School Medical Officers,	... ..	9	
(c) Port Local Authority,	... ..	6	
(d) County Medical Officer,	... ..	18	
(e) From death cards only,	... ..	109	
			150

3. *From Military Authorities,* 5

Total cases registered, 1,702

Private and Public Notifications.—The figures given in the foregoing summary refer to the total number of cases registered during the year, while the following table refers only to notifications under the Act received regarding the 1,547 cases so notified :—

Notifications.		Private.	Public.	Total.	Percentage Public.
Primary,	... ..	1,037	532	1,569	33·2
Multiple,	... ..	121	76	197	38·5
		1,158	608	1,766	—

Age Distribution of Cases Registered.—This information is given in the following table for each of the three years ending 1931 :—

Age		1929		1930		1931	
		M.	F.	M.	F.	M.	F.
— 5 years,	... ..	25	23	35	16	25	35
—10	... ..	47	47	42	36	42	43
—15	... ..	54	52	30	49	37	49
—20	... ..	122	149	122	144	113	133
—25	... ..	129	150	129	133	133	141
—35	... ..	182	198	178	164	195	184
—45	... ..	180	100	169	109	172	83
—55	... ..	141	55	125	66	119	61
—65	... ..	76	40	61	31	84	29
Over 65 years,	... ..	20	14	32	16	15	9
Total,	... ..	976	828	923	764	935	767
Grand Total,	... ..	<u>1,804</u>		<u>1,687</u>		<u>1,702</u>	

Housing Accommodation of Patients.—The following table gives the house accommodation at the date of registration of such patients

as had home addresses. Patients who were in institutions (mostly Poor Law) at the time of notification are included along with those who could not be traced at the addresses given:—

		1929		1930		1931	
		M.	F.	M.	F.	M.	F.
1 Apartment, ...	...	147	139	114	114	102	107
2 „ ...	...	438	422	414	379	425	392
3 „ ...	...	166	168	192	154	209	162
4 „ and up,		110	73	117	83	116	86
In Institutions and not							
traced, ...	...	115	26	86	34	83	20
Total, ...	...	976	828	923	764	935	767
Grand Total, ...	...	1,804		1,687		1,702	

Institutional Treatment.—The following table shows admissions to institutions of patients suffering from pulmonary and non-pulmonary tuberculosis since 1922:—

Year.	Local Authority Hospitals.	Sanatoria.	General Hospitals.	Total.
1922, ...	2,018	714	604	3,336
1923, ...	1,959	690	555	3,204
1924, ...	1,840	499	573	2,912
1925, ...	1,531	457	606	2,594
1926, ...	1,637	425	738	2,800
1927, ...	1,458	413	615	2,486
1928, ...	1,429	418	819	2,666
1929, ...	1,501	494	753	2,748
1930, ...	1,762	608	549	2,919
1931, ...	2,188	477	289	2,954

Dispensary Attendances.—The following table shows the attendances and consultations at the various tuberculosis dispensaries in each year, 1929 to 1931. All forms of tuberculosis are included:—

Dispensary.	Number of Consultations.	Primary Attendances.		Subsequent Attendances.	
		Males.	Females.	Males.	Females.
Year 1929, ...	1,278	2,914		48,015	
„ 1930, ...	1,290	2,574		49,472	
Glenfarg Street,	145	263	234	3,868	2,742
Black Street,	244	400	338	5,550	4,228
Adelphi Street,	196	200	176	3,650	2,747
Acorn Street,	243	419	345	9,326	6,220
Central Area,	154	179	206	2,449	2,767
Govan, ...	318	253	153	6,682	5,089
Year, 1931,	1,300	1,714	1,452	31,525	23,793
Total, ...	...	3,166		55,318	
Grand Total,	...	58,484			

Home Visitation by Nurses.—The number of home visits by nurses during the past three years has been as follows:—

1929.	1930.	1931.
39,632	48,468	55,897

Issue of Medical Extras, Beds and Bedding, &c., to Patients under Treatment at Home.—In 1916 the Local Authority was granted power to provide assistance in the domiciliary treatment of patients in the form of extra nourishment and bed and bedding in necessitous cases. In 1931 these grants were made in 13 cases (medical extras) and 34 cases (bed and bedding). Issues of this nature are only granted after full inquiry, and in cases where the home circumstances are reasonably satisfactory.

Issue of Clothing to Patients.—The interest on the purchase price of Bellefield Sanatorium, amounting to about £400 per annum, has continued to be applied to the purpose of providing clothing for necessitous patients proceeding to sanatoria. During the year 1931 184 patients were assisted in this way, compared with 152 during 1930. The total number assisted since the inauguration of the scheme in 1916 is 2,975.

The death rates from pulmonary tuberculosis in succeeding periods have been as follows:—

1881-1890, 2·680 per 1,000 living.	...1924, - 1·026 per 1,000 living.
1891-1900, 2·015	1925, - ·943
1901-1910, 1·533	1926, - ·876
1911-1915, 1·346	1927, - ·869
1916-1920, 1·191	1928, - ·876
1921, - 1·007	1929, - ·941
1922, - ·946	1930, - ·805
1923, - 1·029	1931, - ·865

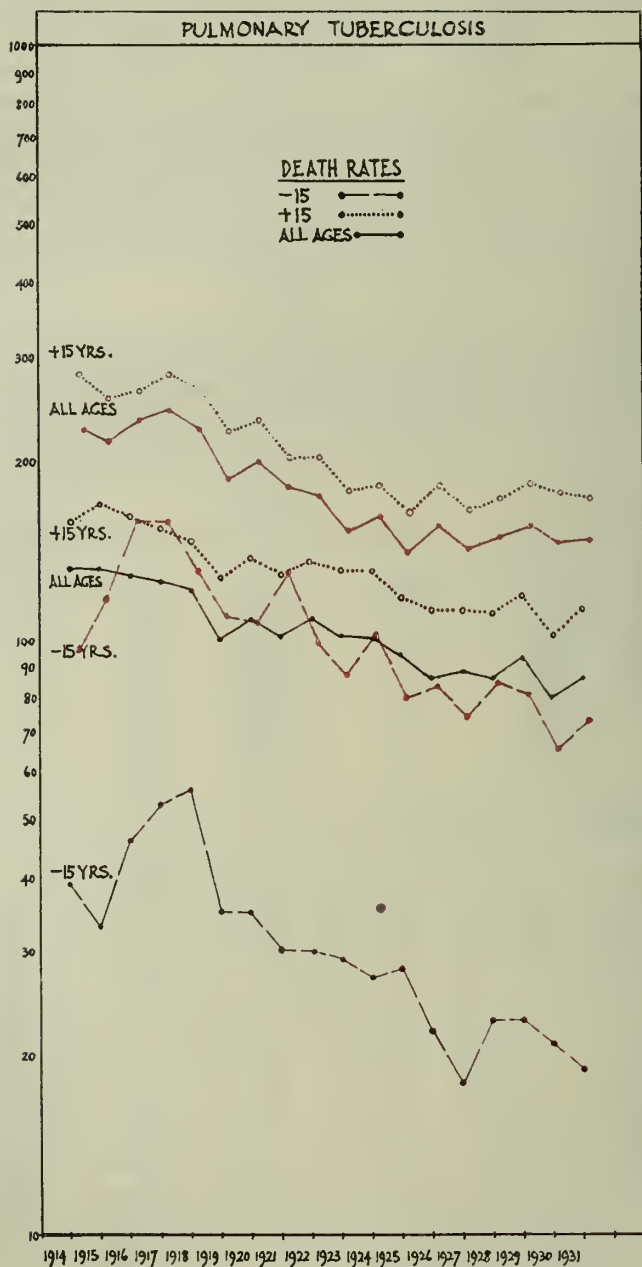
The death rates for several large towns are shown in the table which follows:—

PHTHISIS DEATH RATE PER 100,000 IN CERTAIN TOWNS.

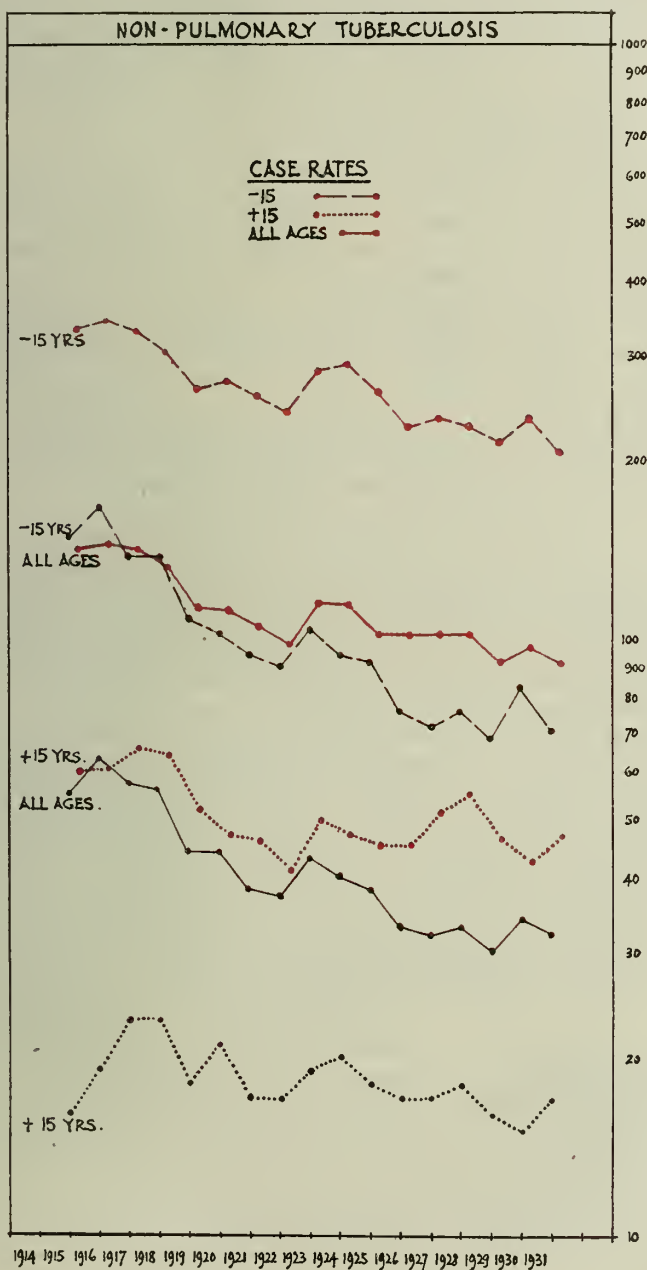
	1913	1920	1924	1925	1926	1927	1928	1929	1930	1931
Glasgow,	143	106	103	94	88	87	87	94	81	87
Edinburgh,	114	85	101	95	84	90	81	85	80	70
Dundee,	116	99	85	87	81	89	80	78	76	73
Aberdeen,	109	93	91	97	75	66	71	55	51	69
London,	—	106	98	95	88	91	89	96	87	90
Liverpool,	—	141	130	130	122	110	118	124	123	115
Manchester,	—	133	118	131	119	115	110	121	115	112
Birmingham,	—	95	97	98	94	89	86	94	90	91

Compared with the death-rate of 865 per million for the city generally, the highest rate in any ward was 1,497 in Exchange, followed by 1,389 in Calton, both of which, however, have a considerable lodging-house population. The next highest rate was 1,184 in Hutchesontown, followed by 1,129 in Parkhead, and 1,107 in Shettleston and Tollcross. These can be compared with the lower rates of 135 in Kelvinside, 331 in Pollokshaws, and 344 in Cathcart.

GLASGOW: ARITH-LOG CHARTS OF CASE-RATES AND



DEATH-RATES PER 100,000 OF THE POPULATION 1914-1931.



The epidemiology of tuberculosis has again been reviewed with special reference to its incidence in children and adults; the charts here given show the trend since 1914 as regards both pulmonary and non-pulmonary forms. The arith-log chart which was inserted in the Annual Report for 1925, showed the very considerable reduction which had taken place in these death-rates as a whole. The new charts show the recent experience in more detail.

As regards pulmonary tuberculosis, the case-rate has remained more or less level for the past five or six years, cases over 15 years of age showing a slight tendency to increase. On the other hand, there are decided reductions in the numbers occurring under 15 years of age, a very important phenomenon.

The death-rate among children has fallen by more than one-third between the years 1920 and 1930, although those for children under five years fluctuate considerably, depending on the prevalence of child affections, such as measles and whooping-cough. The most susceptible age group is from 15 to 20 years, in which tuberculosis of the lungs still tends to occur with undiminished frequency and severity. The apparently intractable nature of phthisis at this age is the one disquieting feature of this affection as we see it to-day.

NON-PULMONARY TUBERCULOSIS.

The chart indicates that the death-rate from non-pulmonary forms of tuberculosis is continuing to fall, especially at the younger ages under fifteen years. The case-rate has not declined to the same extent, owing to the fact that milder forms are still coming under notice. In particular, there is probably considerable over-diagnosis of the abdominal type of the disease.

The subject of non-pulmonary tuberculosis has been under review from time to time, as a considerable proportion of this disease is due to bovine infection. There have recently appeared the results of an extremely valuable investigation by Dr. W. S. Blacklock, Pathologist to the Royal Hospital for Sick Children, dealing with the relative proportions of human and bovine infections in children. Dr. Blacklock has supplied the following table:—

SOURCE AND AGE DISTRIBUTION OF 235 DIFFERENT STRAINS OF TUBERCLE BACILLI ISOLATED FROM CHILDREN LIVING IN GLASGOW AND THE WEST OF SCOTLAND.

Source of Strains.	0 to 5 Years.			5 to 13 Years.		
	Human.	Bovine.	Bovine %	Human.	Bovine.	Bovine %
Primary thoracic lesions (autopsy cases), ...	89	3	3.3	18	—	—
Primary abdominal lesions (autopsy cases), ...	10	45	81.8	2	9	81.8
Bone and Joint (surgical cases), ...	6	4	40.0	6	4	40.0
Cervical glands (surgical and autopsy cases), ...	5	8	61.5	5	10	66.7
Other lesions (surgical and autopsy cases), ...	3	1	25.0	4	3	42.9
Total (Surgical and autopsy cases), ...	113	61	63.8	35	26	42.6

These results may be compared with those obtained by Dr. A. S. Griffith, whose latest figures are included in a "Memorandum on Bovine Tuberculosis in Man," issued last year by the Ministry of Health, from which the following table is taken:—

Variety of Tuberculosis.	No. of Cases.	Percentage of Cases infected with Bovine Type of Tubercle Bacillus.		
		0-5 Years.	5-15 Years.	All Ages.
Cervical gland,	133	84.0	51.5	48.9
Lupus,	168	62.5	53.2	52.4
Scrofuloderma,	59	50.0	43.2	35.6
Bone and joint,	541	29.4	18.6	18.7
Genito-urinary,	23	—	—	17.4
Meningitis,	33	33.3	35.0	27.3
Pulmonary,	795	—	—	2.6
Post-mortem cases,	183	29.7	14.3	22.3

Dr. Griffith's material was obtained from various sources. As regards Scotland, his figure for children under 15 years with bone and joint disease yielding bovine tubercle was 28.6 per cent. (of 28 cases), as compared with 20.9 per cent. (of 426 cases) for England, while Professor Fraser's percentage for Edinburgh and the East of Scotland was 61.2 (of 64 cases); Dr. Blacklock found 34.6 per cent. (of 26 cases). In the case of cervical glands, Dr. Griffith found 71.4 per cent. to be of bovine origin in his Scottish material (14 cases), as compared with 58.7 per cent. in his series for England (65 cases), while Dr. Mitchell (Edinburgh) found 88 per cent. (among 75 cases), Dr. Blacklock's figure being 64.3 per cent. (among 28 cases). These results are significant. Although Dr. Blacklock's numbers for Glasgow are small, and his results as regards the bovine bacillus are not so high as was found in the Edinburgh inquiry, the general conclusion is suggested that bovine tuberculosis occurs more frequently in Scotland than in England. As regards Glasgow, it may reasonably be inferred that more than one half of the commoner forms of non-pulmonary tuberculosis in children of school age and under is caused by the bovine bacillus. Indeed, abdominal tuberculosis is found to be of bovine origin to the extent of more than 80 per cent.

Is it possible to ascertain the volume of bovine infection in the population of the city? It is known fairly accurately how many patients there are in the city suffering from non-pulmonary tuberculosis, their ages, and the particular site or sites of the body affected. In 1926 a detailed analysis of all the known cases was made, and the results may be used for the present purpose. The following table shows in age groups the relative proportions of the different clinical types, arranged with as much accuracy as possible, according to the age at onset:—

AGE OF ONSET SHOWN ACCORDING TO SITE OF LESION.

Site of Lesion (where Multiple, Major Lesion has been taken).	Age of Onset (where Multiple, Primary Lesion has been taken).				Percentage of Total in each Group.			
	Years. -5	Years. -15	Years. +15	Total.	Years. -5	Years. -15	Years. +15	Total.
Pulmonary, ...	18	34	38	90	20.0	37.8	42.2	100.0
Bones and joints, ...	478	472	254	1,204	39.7	39.2	21.1	100.0
Abdomen, ...	255	194	61	510	50.0	38.0	12.0	100.0
Glands, ...	180	331	200	711	25.3	46.6	28.1	100.0
Superficial, ...	44	66	51	161	27.3	41.0	31.7	100.0
Genito-urinary, ...	4	9	37	50	8.0	18.0	74.0	100.0
Other sites, ...	18	18	9	45	40.0	40.0	20.0	100.0
Total,	997	1,124	650	2,771	36.0	40.6	23.4	100.0

This table, which is arranged according to the approximate period of onset, shows that non-pulmonary tuberculosis is predominately a disease of childhood, as 76.6 per cent. of the patients sicken under 15 years of age. The table also reveals a high proportion of bone and joint disease. This occurs mostly in children under 15 years of age, while abdominal tuberculosis is more common in children under five years, and cervical gland tuberculosis is more frequently found in the age group 10-15 years. It may be further remarked that 90 per cent. of children under 15 years of age attacked by tuberculosis contract the disease in one or other of the above three forms. The bacteriological evidence indicates that 80 per cent. of abdominal, 40 per cent. of bone and joint, and 64 per cent. of cervical gland tuberculosis in children are of bovine origin. If this is so, it follows that about one-half of the 2,121 cases in the city who sickened of non-pulmonary tuberculosis during childhood owed their invalidity to bovine sources of infection. It is obvious, therefore, that the child population of Glasgow is not only exposed to, but is in fact heavily infected from bovine sources.

These results raise very pointedly the important question whether administration can afford to stand still in face of the menace of bovine tuberculosis, the magnitude of which is evident from the figures of incidence. The presence of bovine tubercle bacilli in the milk supply of Glasgow is being studied by Dr. Wiseman in the Public Health Laboratory by improved methods of detection, in collaboration with the laboratories of the other three large cities of Scotland under the ægis of the Department of Health with the aid of a grant from the Empire Marketing Board. These results will be published later in a complete form. But it is apparent from the investigations already made that some 15 per cent. of samples taken from milk reaching the city contains tubercle bacilli, and that pasteurisation by approved methods is a quite definite safeguard. The protection of the public which pasteurisation affords has led to the suggestion that milk supplied to large centres of population should be pasteurised unless it is derived from tubercle free herds. In July of last year a joint report on this subject was prepared by the Medical Officer of Health and the Veterinary Surgeon giving in detail arguments in favour of a policy of this kind, and recommending that the Corporation should obtain

Parliamentary powers. At the end of the year the matter was still under consideration pending consultation with the other large cities of Scotland—Edinburgh, Dundee and Aberdeen. Since then the Local Authority has decided (May, 1932), to apply for powers by means of a Provisional Order.

The cases notified in 1931 numbered 976, compared with 1,047 in 1930. The cases registered since 1914 when all forms of the disease were made compulsory notifiable, are as follows:—

Year.	Cases Registered.	Year.	Cases Registered.
1914-15 (annual average),	1,303	1925, ...	... 1,115
1916-20 ,,	1,360	1926, ...	... 1,031
1921, 	1,141	1927, ...	... 1,101
1922, 	1,050	1928, ...	... 1,107
1923, 	1,234	1929, ...	... 992
1924, 	1,221	1930, ...	... 1,047
		1931, ...	... 976

The reductions in the death-rate from the various forms of non-pulmonary tuberculosis is given in the following table:—

GLASGOW.—DEATH-RATE PER MILLION OF THE POPULATION.

Year.		Tuberculous Meningitis.	Abdominal Tuberculosis.	Other Forms.	Total.
1901-5,	...	319	301	258	878
1906-10,	...	416	278	255	949
1911-15,	...	285	197	183	665
1916-20,	...	210	167	170	547
1921-25,	...	163	103	122	388
1926, ...	...	142	69	106	317
1927, ...	...	148	62	103	313
1928, ...	...	148	59	110	317
1929, ...	...	140	64	99	303
1930, ...	...	182	51	104	336
1931, ...	...	153	55	110	318

The following tables show (1) the distribution of the cases registered in each year in accordance with the location of the disease and sex of the patients: and (2) distribution according to certain age-periods in each year:—

TABLE I.
SHOWING NON-PULMONARY TUBERCULOSIS CASES REGISTERED DURING 1914-1930,
WITH LOCATION OF DISEASE AND SEX.

Year.	Glands.		Bones and Joints.		Abdomen.		Meninges.		Multiple.		Others.		Total.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1914,*	159	153	239	186	79	45	73	47	11	18	70	62	631	511
1915,	176	232	192	156	135	104	137	123	52	27	71	59	763	701
1916,	199	216	185	138	155	136	136	140	40	18	75	64	790	712
1917,	203	266	196	170	155	113	93	95	41	34	70	57	758	735
1918,	186	265	158	143	119	128	92	107	34	30	78	72	667	745
1919,	138	178	164	127	126	123	93	86	40	29	56	47	617	590
1920,	138	145	193	168	116	112	89	83	39	29	44	29	619	566
1921,	149	171	165	127	116	84	78	74	27	29	68	53	603	538
1922,	134	147	141	124	130	111	75	66	20	24	42	36	542	508
1923,	145	155	181	129	145	118	102	75	16	15	78	75	667	567
1924,	149	150	145	130	140	144	104	81	35	36	65	42	638	583
1925,	145	137	150	139	131	114	75	65	29	24	54	52	584	531
1926,	135	137	142	131	115	109	78	57	24	35	35	33	529	502
1927,	131	148	186	134	127	106	89	61	22	17	45	35	600	501
1928,	132	152	150	138	113	99	84	86	20	10	61	62	560	547
1929,	117	154	138	107	109	104	86	85	10	12	38	32	498	494
1930,	111	130	124	130	129	117	98	116	9	7	44	32	515	532
1931,	101	139	137	115	101	99	90	87	12	14	50	31	491	485

* Figures for six months ending 31st December, 1914.

TABLE II.
AGE DISTRIBUTION OF NON-PULMONARY TUBERCULOSIS CASES REGISTERED DURING EACH YEAR,
SINCE COMMENCEMENT OF NOTIFICATION ON 1ST JULY, 1914.

Year.	Under 1 year.		1-5 years.		5-10 years.		10-15 years.		Over 15 years.		Total.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1914, ...	60	21	132	90	140	102	134	115	165	183	631	511
1915, ...	59	49	236	161	164	140	112	108	192	243	763	701
1916, ...	64	45	244	152	149	123	108	164	225	228	790	712
1917, ...	52	48	190	134	157	156	117	149	242	248	758	735
1918, ...	30	33	163	169	137	125	129	142	208	276	667	745
1919, ...	45	28	151	109	142	123	78	136	201	194	617	590
1920, ...	57	35	143	122	128	137	110	94	181	178	619	566
1921, ...	51	35	157	111	133	122	81	94	181	176	603	538
1922, ...	38	28	175	150	103	87	71	79	155	164	542	508
1923, ...	59	19	214	165	116	112	86	79	192	192	667	567
1924, ...	50	39	212	171	96	99	103	85	177	189	638	583
1925, ...	48	22	184	144	111	103	71	77	170	185	584	531
1926, ...	28	22	162	127	109	88	63	78	167	187	529	502
1927, ...	31	28	171	102	130	82	73	77	195	212	600	501
1928, ...	29	17	152	104	115	112	83	60	180	255	559	548
1929, ...	32	27	132	102	111	95	63	66	160	204	498	494
1930, ...	31	27	145	137	116	124	62	74	161	170	515	532
1931, ...	26	17	126	106	101	97	67	71	171	194	491	485

ACTINOTHERAPY CLINIC, BAIRD STREET.

This year the number of patients attending the outdoor clinic was 438, while 48 patients received indoor treatment, these figures being very similar to those of 1930. They do not include cases having less than one month's treatment.

Adenitis.—More than half the cases attending the clinic suffered from adenitis, and as in previous years the results of treatment were very satisfactory. Of those who ceased attending the outdoor clinic during the year and who had received more than one month's treatment, 82.9 per cent. showed marked improvement, many being quite healed. Of those who were not improved the majority had not persevered with treatment over a sufficient period of time. In the treatment of abscesses arising from the glandular affection, incision at a suitable stage was preferred to aspiration, the healing in many cases being expedited and extensive ulceration of the skin prevented.

Lupus and Tuberculosis of the Skin.—No therapeutic measure can compare with the use of ultra-violet rays in the treatment of extensive lupus, although the results of treatment as shown in the accompanying table do not appear as satisfactory as could be desired. Of those cases who ceased attending during the year and who were not improved, some had treatment for only a very short period while others who had more extended treatment attended very irregularly. In those cases where there was no marked improvement, treatment, in the large majority of the cases, checked the progress of the disease, which if not subjected to treatment tends slowly to advance. Local treatment by the application of caustics was also employed. Two cases of tuberculosis of the skin, excluding lupus, were treated, and the results were satisfactory when treatment was continued over a sufficiently long period.

Abdominal Disease.—In the very mild forms of the disease deemed suitable for outdoor treatment, the results were very satisfactory. Other than the very mild forms require hospitalisation.

Diseases of Bones and Joints and Dactylitis.—While prolonged treatment was required in these conditions, the results were satisfactory.

The miscellaneous group included a very small number of cases, but the majority showed considerable improvement under treatment.

The following table includes outdoor cases who ceased attendance at the clinic during this year, but does not include those cases continuing treatment in 1932. Of the former there were 261 cases, but 78 were excluded as they had received less than one month's treatment. Under the column "healed" are included those cases which are healed or are almost healed, under the column "improved" those cases in which there has been considerable improvement, and under the column "not improved" those cases in which the improvement, if any, is slight or there has been no change.

In the second table are included those patients who received indoor treatment :—

NON-PULMONARY TUBERCULOSIS.

RESULTS OF LIGHT TREATMENT AT BAIRD STREET CLINIC.

OUT-PATIENTS.					Average Duration of Treatment in Months.		
	Healed.	Improved.	Not	Total.	Healed.	Impr.	Not Impr.
			Improved.				
Adenitis,	58	34	19	111	10.2	7.4	3.5
Lupus,	3	5	12	20	14	14.6	11.2
Abdomen,	2	10	5	17	15	9.1	6.2
Bone and Joint Disease,	7	4	6	17	18.4	6.8	8.7
Tub. Cutis,	2	1	2	5	17	2	4
Dactylitis,	2	1	2	5	10.1	15	11
Miscellaneous,	4	2	2	8	10.8	4	3
	<u>78</u>	<u>57</u>	<u>48</u>	<u>183</u>			

IN-PATIENTS.					Average Duration of Treatment in Months.		
	Healed.	Improved.	Not	Total.	Healed.	Impr.	Not Impr.
			Improved.				
Adenitis,	11	1	1	13	4.4	2	2
Abdomen,	3	—	—	3	7	—	—
Bone and Joint Disease,	1	—	—	1	3	—	—
Dactylitis,	6	—	3	9	7.1	—	1.7
Miscellaneous,	3	—	1	4	8	—	3
	<u>24</u>	<u>1</u>	<u>5</u>	<u>30</u>			

There were 255 outdoor cases under treatment at the clinic at the end of the year and there were 18 patients receiving indoor treatment. Thus, excluding those cases who received less than one month's treatment, 438 patients attended the outdoor clinic during the year and 48 received indoor treatment.

GOVAN TUBERCULOSIS LIGHT CLINIC.

During the year 1931 there were 118 sessions of this clinic with 2,771 attendances. Of 99 patients recommended for artificial heliotherapy, 82 completed courses of treatment.

The patients who completed treatment are classified in the following table :—

Condition.	Improved.	Not Improved.	Total.
Adenitis,	36	5	41
Tuberculosis of Skin, ...	6	8	14
Do. Bone,	4	2	6
Do. Joint,	1	—	1
Do. Abdomen,	—	1	1
Observation Cases, ...	5	1	6
Others,	10	3	13
	<u>62</u>	<u>20</u>	<u>82</u>

10 patients (adenitis 5, lupus 3, and observation 2) received two courses of treatment.

Adenitis.—It is in this type of case that the greatest benefit seems to be obtainable. Many were complicated by abscess or sinus formation. Incision was practised more frequently than hitherto in cases where the skin over an abscess was markedly involved. Healing took place normally and satisfactorily.

Tuberculosis of the Skin.—The cases of lupus were all of the chronic fibrotic form and had already received much treatment. Improvement, where it occurred, was very slow.

Tuberculosis of Bones and Joints.—This group included cases of dactylitis and other bone lesions where there was a sinus or ulcer with delay in healing.

Observation Cases.—Where contacts showed signs of general debility or evidence suggestive of a generalised adenopathy they were, in some cases, given a course of sunlight treatment. Almost all of them appeared to benefit.

Other Conditions.—Among miscellaneous conditions treated were septic skin lesions and ulcers, post-pneumonic conditions and sinus following mastoid operation. The results in these cases were very satisfactory.

X-RAY WORK.

The X-ray work at Ruchill, Robroyston and Mearnskirk hospitals has proceeded during the year 1931 along the usual lines. A new 4-valve set was installed in Robroyston Hospital when the current was changed from a periodicity of 25 cycles to a periodicity of 50 cycles. This new apparatus has led to increased efficiency in the work done at Robroyston, and it can now be safely said that all these three institutions possess diagnostic equipment which is capable of carrying out any work it may be asked to do. Experience with the Rotalix tube at Ruchill has confirmed the impression that this tube is the most satisfactory tube at present obtainable for taking adult chest radiograms. While the opinion is sometimes expressed that chest films may be satisfactorily taken at a comparatively high voltage in a fraction of a second, the experience of these departments all goes to show that the lower the kilovoltage the better the result. Unfortunately as the kilovoltage is lowered, the exposure measured in m.a. seconds has to be increased very considerably. No tube at present on the market is able to stand those low-voltage high-current exposures for any length of time and the Rotalix tube is the nearest approach that we have yet obtained. The next move must be with the tube makers.

Much interesting work has been done at Ruchill during the past year in the routine examination of post-pneumonic cases and much information has been gained by observing the changes that take place very gradually in such chests which frequently simulate tuberculosis. A

much larger number of X-ray photographs of artificial pneumothorax cases was taken during the past year than ever before, and with the increased popularity of this method of treatment a large amount of extra work has been thrown on the departments.

It is satisfactory to be able to report that at all these hospitals British films and intensifying screens are found to be equally as good as, and often better than their foreign competitors. The number of cases examined at these hospitals is given in the following table:—

				Hospital.	Outdoor.	Total.
Ruchill,	...	...	...	1,173	2,859	4,032
Robroyston,	...	...	...	789	—	789
Mearnskirck,	...	...	...	1,026	—	1,026
Total,	...	...	...	...	...	<u>5,847</u>

The number of cases treated by ultra-violet light at Ruchill was as follows:—

						Number of Patients.	Number of Attendances.
Outdoor,	...	...	...	...	...	30	1,142
Hospital,	...	...	...	...	...	92	2,198

FERGUS L. HENDERSON,
Radiologist.

SECTION VI.

 VENEREAL DISEASE.

During the year further efforts were made to consolidate and make more effective the work of the various clinics for the treatment of venereal diseases. It is obvious that, with regard to syphilis, the venereal disease scheme is justifying itself as there is decided evidence of reduction in the amount of this disease in the country. The usual tables showing the work done are included. The following report and discussion of the administration of the scheme and its results has been prepared by Dr. R. J. Peters.

General.—Table A shows the new patients admitted to the various treatment centres in 1931 under separate disease headings. The most striking feature is the reduction in the number of new cases attending and the increase in the number of cases coming for examination who were not suffering from venereal disease. The total number of new cases in 1931 was 3,824, as compared with 4,354 in 1930.

In the male “ad hoc” centres there were 110 fewer cases of acute syphilis than in 1930, a reduction of 27 per cent. The number of cases of late syphilis remains constant, as does the number of acute cases of gonorrhœa. Taking all the centres into consideration, the reduction in the cases of acute syphilis is the most noteworthy point, the other venereal infections remaining much the same as in the preceding year. What this means is difficult to say. There is obviously a greater tendency for patients to seek treatment at the public centres, as evinced by the numbers of non-venereal cases. There is also a greater tendency for patients to continue under treatment, but the non-diminution in the incidence of gonorrhœa would seem to indicate that the risks of contracting infection are as widely taken as formerly.

In syphilis the infective period in treated cases is very much shortened, and although relapse of infectivity may occur later, the disease has been under control during what would otherwise have been its most dangerous stage. Even in cases receiving what is regarded as treatment wholly inadequate for cure, the immediate infectivity is very much reduced by the few doses of salvarsan and bismuth which they receive. With regard to gonorrhœa, treatment is not so effective in this respect, no drug being available which will rapidly and certainly render the patient non-infective. The continued drop in fresh syphilitic infections is one of the indications that some success is attending the anti-venereal campaign. The economic depression has been suggested as the cause for the diminution in the number of fresh cases of syphilis, but why has this not equally produced a reduction in gonorrhœa? It is interesting to note also in this

respect, that the only clinic where acute syphilis cases have not been reduced in number is Broomielaw, which is the clinic which deals mainly with the sea-going population.

The total attendances for out-patient treatment numbered 184,064, a decrease of 6,940.

TABLE A.

NEW PATIENTS ADMITTED TO THE VARIOUS TREATMENT CENTRES IN 1931.

	Sex.	Primary Syphilis.	Secondary Syphilis.	Late Syphilis.	Congenital Syphilis.	Extra-genital Infection.	Acute Gonorrhoea.	Chronic Gonorrhoea.	Soft Chancre.	Syphilis and Soft Chancre.	Syphilis and Gonorrhoea.	Gonorrhoea and Soft Chancre.	Balanitis.	Venereal Warts.	Stricture.	Other than Venereal.	Total.	Aggregate Attendances.
OUT-PATIENTS—																		
Id Hoc Centres—																		
Male—																		
Black Street, Broomielaw, and Bellahouston, ...	M.	208	81	150	10	7	1,248	255	78	6	47	3	239	20	27	945	3,324	126,213
Female—																		
Baird Street and Govan,	M.	—	—	—	7	—	2	—	—	—	—	—	—	—	—	10	19	457
	F.	14	27	55	11	—	83	29	—	—	13	—	—	—	—	169	401	12,586
Other Centres—																		
Lock Hospital,...	M.	—	—	—	25	—	—	1	—	—	—	—	—	—	—	7	33	324
	F.	7	6	33	52	—	22	201	—	—	80	—	—	—	—	55	456	19,547
Western Infirmary,	M.	11	12	89	6	2	—	—	4	1	—	—	1	—	2	30	158	5,509
	F.	1	21	52	12	1	14	16	—	—	5	—	—	1	—	38	161	6,449
Victoria Infirmary,	M.	—	3	7	1	—	1	—	—	—	1	—	—	—	—	—	13	357
	F.	1	4	7	1	—	1	—	—	—	—	—	—	—	—	2	16	385
Eye Infirmary,	M.	—	—	19	23	—	—	—	—	—	—	—	—	—	—	—	42	3,058
	F.	—	—	14	31	—	—	—	—	—	—	—	—	—	—	—	45	2,610
Royal Hospital for Sick Children,	M.	—	—	—	9	—	—	—	—	—	—	—	—	—	—	71	80	631
	F.	—	1	14	8	—	—	—	—	—	—	—	—	—	—	74	97	1,608
Inde-Natal Centres—																		
Maternity Hosp.,	M.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	F.	2	1	15	1	—	21	7	—	—	2	—	—	—	—	107	156	2,412
Child Welfare Clinics, ...	M.	—	—	—	2	—	—	—	—	—	—	—	—	—	—	9	11	90
	F.	1	1	48	7	—	2	3	—	—	—	—	—	—	—	116	178	1,828
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Total No. of Out-Patients.		245	157	503	266	10	1,394	512	82	7	148	3	240	21	29	1,633	5,190	184,064
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IN-PATIENTS—																		
Kelvidere Hospital,	M.	5	2	3	1	—	9	1	2	—	—	—	2	—	2	—	27	—
Lock Hospital, ...	M.	—	—	—	25	—	—	—	—	—	—	—	—	—	—	14	39	—
	F.	2	—	2	28	—	6	75	—	—	62	—	—	—	—	17	192	—
Other Institutions,	M.	—	—	20	5	—	—	—	—	—	—	—	—	—	—	1	26	—
	F.	1	1	6	5	—	1	1	—	—	—	—	—	—	—	3	18	—
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Total No. of In-Patients,		8	3	31	64	—	16	77	2	—	62	—	2	—	2	35	302	—
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Grand Total, ...		253	160	534	270	10	1,410	589	84	7	210	3	242	21	31	1,668	5,492	—

Table B shows the number of cases dealt with in hospital. It still remains a matter of great difficulty to get patients to consent to accept indoor treatment, especially when they are not absolutely incapacitated. Many cases have the duration of the illness considerably prolonged because of refusal to go into hospital.

Extra-genital Infection.—There were ten cases of extra-genital infection, none of them, however, in young persons.

Congenital Syphilis.—There has been a slight increase in the number of congenital cases coming under observation this year, but the increase is all at ages over 25 years. Only 77 cases under one year old were treated. The following table shows the number of new cases of congenital syphilis attending the various treatment centres for the past three years, with their age and distribution:—

AGE INCIDENCE OF CASES OF CONGENITAL SYPHILIS.

Year.	—1	—5	—15	—20	—25	—35	+35	Total.
1929	138	87	59	38	15	11	3	351
1930	84	35	74	29	11	12	5	250
1931	77	42	71	28	21	20	11	270

During these three years there was a greater number of females than males, but the excess of females was principally in those age groups over 15. The following table shows the incidence in males and females of congenital syphilis under one year from 1922, and it is very difficult to explain the extraordinary preponderance of females. In 1922 they numbered twice the male cases, and during the succeeding years continued with a gradually diminishing excess until now the cases appear to be occurring equally in both sexes.

TABLE B.

SHOWING TOTAL NUMBER OF PATIENTS ADMITTED FOR IN-PATIENT TREATMENT.

	Sex.	Primary Syphilis.	Secondary Syphilis.	Late Syphilis.	Congenital Syphilis.	Extra-genital Infection.	Acute Gonorrhoea.	Chronic Gonorrhoea.	Soft Chancre.	Syphilis and Soft Chancre.	Syphilis and Gonorrhoea.	Gonorrhoea and Soft Chancre.	Balanitis.	Venereal Warts.	Stricture.	Other than Venereal.	Total Admissions.	Average Days' Residence.	Average Days' Residence.
Belvidere Hospital,	M.	19	14	16	2	—	119	8	17	2	—	—	4	—	14	—	215	6,877	31
Baird Street,	...	M.	—	—	4	—	—	—	—	—	—	—	—	—	—	4	8	425	53
...	F.	4	6	10	14	—	16	3	—	—	4	—	—	—	—	15	72	3,230	44
Lock Hospital,	...	M.	—	—	28	—	—	—	—	—	—	—	—	—	—	14	42	2,660	63
...	F.	4	1	5	42	—	13	136	—	—	127	—	—	—	—	17	345	33,933	98
Other Hospitals,	...	M.	—	—	28	14	—	—	—	—	—	—	—	—	—	—	42	1,527	36
...	F.	1	1	10	10	—	—	—	—	—	—	—	—	—	—	—	22	775	35
Total,	...	28	22	69	114	—	148	147	17	2	131	—	4	—	14	50	746	49,427	66

There seems to be two possible explanations—one, that male congenital cases mostly died in utero, and the other that the male did

not become infected to the same extent as the female. The latter explanation is unlikely to be true, and the fact that the figures are now becoming equalised between the two sexes appears to indicate that possibly syphilis is becoming mild, that fewer cases of congenital syphilis are occurring, and that the survival rate among male congenital cases has now approached that of females. The decrease in congenital syphilis is one of the most encouraging features in the campaign against venereal disease.

NEW CASES OF SYPHILIS UNDER ONE YEAR OF AGE ATTENDING
THE TREATMENT CENTRES FROM 1922-31.

	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931
Males ...	107	101	34	46	36	32	29	72	60	32
Females	228	168	168	165	138	87	84	82	68	41

Table C shows the age incidence of new cases.

Treatment.—The standard course for the treatment of early cases of syphilis, as described in the Annual Report of last year, was continued, but in many instances potassium iodide was not given. In venereal diseases clinics, continual watch must be maintained for any ill-effects which may follow the administration of arsenobenzol compounds. The fact that treatment is given under a cloak of secrecy frequently prevents the clinic officers from obtaining knowledge of an ill-effect. For example, one case, in response to the usual follow-up letter, intimated that he was in bed with jaundice, and it was only when this Department got into communication with his private doctor that the latter realised that his patient had been suffering from syphilis. The fact of his having syphilis had been carefully concealed from his wife and his medical attendant. In this particular instance the medical adviser recalled a transient sore throat regarding which the wife had consulted him, and on further investigation it was found that the wife's Wassermann reaction was positive, and that in actual fact the sore throat had been a symptom of secondary syphilis.

TABLE C.
AGE INCIDENCE OF NEW CASES, 1931.

	—1	—5	—15	—20	—25	—35	+35	Total.
Primary Syphilis, ...	—	—	1	7	56	132	57	253
Secondary Syphilis, ...	—	1	—	15	30	66	48	160
Late Syphilis, ...	—	—	—	5	40	117	372	534
Congenital Syphilis, ...	77	42	71	28	21	20	11	270
Extra-genital Syphilis, ...	—	—	—	2	2	3	3	10
Acute Gonorrhœa, ...	1	6	9	59	353	674	308	1,410
Chronic Gonorrhœa, ...	1	3	10	100	133	221	121	589
Soft Chancre, ...	—	—	—	3	21	40	20	84
Syphilis and Soft Chancre, ...	—	—	—	1	—	1	5	7
Syphilis and Gonorrhœa, ...	—	—	—	32	61	70	47	210
Gonorrhœa and Soft Chancre, ...	—	—	—	—	1	1	1	3
Balanitis, ...	—	—	—	25	85	82	50	242
Venereal Warts, ...	—	—	—	3	9	8	1	21
Stricture, ...	—	—	—	—	—	4	27	31
Other than Venereal, ...	141	62	50	96	326	616	377	1,668
Totals,...	220	114	141	376	1,138	2,055	1,448	5,492

The following shows the principal ill-effects of arsenobenzol compounds in the treatment of syphilis at three centres:—

ILL-EFFECTS OF DRUGS IN TREATMENT OF SYPHILIS CASES
DISMISSED FROM THREE CENTRES—1931.

				Jaundice.	Skin.	Total Cases Treated.
<i>Black Street—</i>						
Number of cases,...	...	...	...	28	10	303
Percentage of total cases,	...	...	...	9%	3%	
<i>Broomielaw—</i>						
Number of cases,...	...	...	...	16	1	150
Percentage of total cases,	...	...	...	11%	0·7%	
<i>Bellahouston—</i>						
Number of cases,...	...	...	...	1	6	111
Percentage of total cases,	...	...	...	0·9%	5%	
<i>Percentage for Three Clinics, ...</i>						
	...	...	...	8%	3%	564
38 cases of jaundice occurred in 385 cases of early syphilis—10%.						
7 cases of jaundice occurred in 179 cases of late syphilis—3·9%.						
Only 2 cases of jaundice occurred in 160 females treated—1·3%.						

These figures, for the above-mentioned reason, namely, the difficulty of following-up cases, may not be complete but they certainly indicate that the utmost care is necessary in the use of these drugs. On the other hand, in the above table many cases of jaundice and skin affections of an extremely trifling character have been included. Some of the cases of jaundice were benign and the patient continued at work. Under the heading "skin" is included every toxic skin lesion; most of these were slight in degree and the ordinary treatment was resumed later. It should be noted that odd cases of jaundice have also been recorded during the year amongst gonorrhœa patients who have not had any arsenical treatment whatever, and where the jaundice had no apparent association with venereal disease. To distinguish accurately between arsenical and other jaundice in an out-patient clinic is impossible. It is possible, however, that the amount of arsenical jaundice is rather greater than in former years, but in Glasgow it remains about the same as it was in 1930.

A considerable amount of investigation has been carried out in the various centres on the subject of the prophylaxis of these ill-effects, and it is hoped that the results will be published shortly. The question of the effect of diet on the incidence of arsenical jaundice has recently been the subject of investigation, and it has been stated that a diet deficient in fats and proteins has a predisposing influence. This seems to agree with the finding that in private practice jaundice is apparently much more rare than in public dispensaries.

During the year there were three deaths following the administration of arsenobenzol—one was a case of acute yellow atrophy, one of arsenical dermatitis, and one of acute toxæmia, the symptoms of which commenced two hours after the second injection. With respect to male gonorrhœa, the standard of cure, as set down in the Annual Report of 1930, has been adhered to with apparently satisfactory results. There have been practically no instances of relapse in cases which have satisfactorily passed the test. Also, the principle of reserving a special session where the surgeon may examine cases as to their fitness for dismissal has proved of great benefit.

Staffing of the Venereal Diseases Treatment Scheme.—In the “ad hoc” centres, which are directly under the control of the Corporation, the male clinical staff is entirely part-time and the female full-time. The team of male clinicians is recruited from the visiting staffs of the voluntary hospitals and has represented in it physicians, dermatologists, and a surgeon. These medical officers refer freely, one to another, cases where the special knowledge of any member of the staff will be of advantage. Meetings of the clinical staff are held periodically at which certain reports are read and measures for the co-ordination of the service are discussed. It should be noted that although there are 12 members of the part-time staff, nevertheless their hours of consultation are so arranged that in the main a patient has the same doctor throughout his treatment.

Defaulting from Treatment.—Table D shows the number of new cases, dismissals, and defaulters for the year 1931, and Table E shows the percentage of defaulters to total dismissals. There has been a further improvement in the attendance of cases, and since May an intensified system of follow-up letters has been in operation with respect to cases of acute syphilis which has shown moderately satisfactory results.

In an investigation into the causes of defaulting, published in the Annual Report, 1929, it was shown that about one-third defaulted because they had approached the period when cure was complete, but examination before discharge had not been carried out. In 1930 further investigation was carried on along the same lines, with the result that it seems clear that after a rest period is the time when a large proportion of defaulting takes place. Such obstacles as hours of employment, distance from clinic, and accidents in treatment do not seem to be of such great importance as one would imagine. Cases coming from beyond the city boundary seem to attend as regularly as city cases, if not more so.

TABLE D.

SHOWING NUMBERS OF DEFAULTERS AND DISMISSALS FROM 1ST JUNE, 1930, TO
31ST MAY, 1931.

	Syphilis.		Gonorrhoea.		Soft Chancre.		Mixed Infections.		Conditions other than Venereal.		Total.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
Number of persons who, at the commencement of the year, were under treatment or observation for—	1,455	1,019	963	495	55	2	138	274	3	18	2,614	1,804
Defaulters returning, ...	63	51	65	24	—	—	4	22	—	—	132	9
Transfers from other Centres, ...	98	44	186	20	30	—	11	4	4	2	329	7
Cases in which treatment or observation was commenced during the year, ...	775	513	1,904	547	132	—	81	180	1,042	498	3,934	1,73
Total, ...	2,391	1,627	3,118	1,086	217	2	234	480	1,049	518	7,009	3,71
Number of persons who ceased to attend the Centre—												
(a) before completing a course of treatment for— ...	422	218	790	135	43	—	47	53	—	—	1,302	40
(b) after completing a course of treatment but before final tests as to cure of— ...	211	135	488	87	35	—	21	70	—	—	755	29
Number of persons transferred to other Treatment Centres after treatment for— ...	196	123	377	90	56	—	25	94	—	—	654	30
Number of persons discharged from the Centre after completion of treatment and observation for— ...	30	41	539	415	48	1	3	31	—	—	620	4
Number of persons who died while under treatment for— ...	11	14	1	1	—	—	—	1	—	—	12	
Number of persons who, at the end of the year, were under treatment or observation for— ...	1,521	1,096	923	358	35	1	138	231	55	8	2,672	1,6
Total, ...	2,391	1,627	3,118	1,086	217	2	234	480	55	8	6,015	3,2

TABLE E.

RELATION OF DEFAULTERS TO NEW CASES AND TO TOTAL DISMISSALS
FROM 1st JANUARY, 1931, TO 31st DECEMBER, 1931.

	Syphilis.		Gonorrhoea.		Soft Chancre		Mixed Infections.		Total.		Grand	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.	Total.
New cases,	734	493	1,810	484	84	—	58	162	2,686	1,139	4,825	
Dismissals (treatment completed),	18	41	562	290	32	—	2	19	614	350	964	
Defaulters (treatment not completed),	511	291	845	99	35	—	47	42	1,438	432	1,870	
„ (treatment completed but before test as to cure),	155	92	522	87	34	—	11	50	722	229	951	
Total defaulters,	666	383	1,367	186	69	—	58	92	2,160	661	2,821	
Defaulters and dismissals,	684	424	1,929	476	101	—	60	111	2,774	1,011	3,785	
Percentage of defaulters to total dismissals,	97.3	90.3	70.8	39.0	68.3	—	96.6	82.8	77.8	65.3	74.5	
Percentage of defaulters (treatment not completed) to total dismissals,	74.7	68.6	43.8	20.7	34.6	—	78.3	37.8	51.8	42.7	49.4	
Percentage of defaulters (treatment completed) to total dismissals,	22.6	21.6	27.0	18.2	33.6	—	18.3	45.0	26.0	22.6	25.1	

Accordingly, at the meetings of the clinical officers great stress has been placed upon the necessity of detailing at length to the patient the amount of treatment which will probably be necessary in each case. Not only is this carried out at the first attendance when the patient's mind is probably not in a very receptive mood, but at subsequent attendances opportunity is taken to discuss treatment with the patient.

There is a great danger in the routine practice of a venereal clinic for treatment to become mechanical, and for the patient to be simply passed from consulting room to treatment room without any remark regarding his treatment being addressed to him. After a period, when he has forgotten the lecture he received on his first attendance, he begins to wonder how much longer he must continue under treatment, and on taking thought on this matter he discovers that his lesion is healed and he simply ceases to appear. Therefore it should always be the object of the clinical medical officers and the attendants to keep before the patient a definite conception of the amount of treatment which will be required. The following table, referring to the male "ad hoc" centres, shows the number of courses of treatment given to cases of acute syphilis who defaulted during the year. The percentage receiving less than one course was 34. This is a very unsatisfactory result. It seems almost impossible to get a certain class of patient to appreciate the necessity for continuing under treatment.

NUMBER OF COURSES IN DEFAULTING CASES OF ACUTE SYPHILIS.

<i>Number of Courses—</i>						
Less than 1,	...	...	...	...	...	116
" " 2,	...	...	...	...	...	118
" " 3,	...	...	...	...	...	84
" " 4,	...	...	...	...	...	11
" " 5,	...	...	...	...	...	8
" " 6,	...	...	...	...	...	1
Total,						338

The policy of the clinicians with regard to syphilis in refraining from finally dismissing cases from the clinics has been continued. Cases who are regarded as cured are not written off but are asked to attend in one year or even two years' time for re-examination.

With regard to acute gonorrhœa the position is the same as with syphilis in that only less than one-third of the patients are dismissed as cured. The treatment of gonorrhœa has been the subject of considerable attention by the clinicians during the past year, and it seems probable that some modification in the routine will be instituted.

Ante-Natal Treatment.—The medical officer in charge of the Corporation female clinics was during the year appointed to take charge also of the clinic attached to the Royal Maternity Hospital. This appointment is already bearing fruit in the formation of a closer alliance between the obstetrical staff and the venereal diseases scheme. Cases are now being more freely referred for treatment than formerly, and special care is taken to prevent any case who has been thoroughly treated from suffering any disability in the way of being refused admission to the ordinary obstetrical wards. There is still, however, room for improvement in this respect, and it is obvious that a considerable number of cases of latent syphilis pass through the ante-natal dispensaries at the Maternity Hospital without being diagnosed.

Work of the Nurse Almoner.—During 1931, 645 visits were paid by the nurse almoner. These visits included the follow-up of 259 patients who had interrupted their treatment. Of these 259 patients, 84 did not resume satisfactory treatment. 21 of these had either removed or were not found at the address given. Most of them were, however, by reason of the treatment which they had already had, in a relatively non-infective condition.

Staffing of Govan Treatment Centre.—It was decided to staff this special centre by health visitors from the Child Welfare Department who are now seconded in rotation for this duty for periods of six months.

The additional experience thus obtained by the health visitors will undoubtedly prove of great value to the whole service.

Issue of Salvarsan Substitutes to Private Practitioners.—During the year, 1391 doses of Salvarsan Substitutes were issued to 52 Medical Practitioners as compared with 1476 doses to 48 Practitioners in the previous year.

SECTION VII.

PORT LOCAL AUTHORITY.

Summary of Work during the year 1931.—There arrived from foreign ports 1,451 vessels and 771 from the Irish Free State. Of the vessels from foreign ports, 505 had come from or called at infected ports as defined by the Cholera Order—271 direct or with inward foreign cargo on board, and 234 light or with outward cargo on board. The total tonnage of the vessels from foreign ports was 4,224,987 tons. as compared with 4,736,062 tons for 1,625 vessels during the year 1930.

The following table shows the number and nationality of overseas vessels with their crews arriving at the Port of Glasgow during the year 1931, as compared with 1930.

Nationality.	Number of Vessels.		Number of Crews.	
	1930	1931	1930	1931
American, ...	61	52	2,415	1,892
British, ...	1,300	1,161	85,601	72,212
Belgian, ...	1	1	38	11
Danish, ...	14	24	281	447
Danzigger, ...	—	1	—	40
Dutch, ...	19	11	365	120
Esthonian, ...	1	2	19	39
Finnish, ...	13	17	282	381
French, ...	1	2	10	48
German, ...	13	20	264	444
Greek, ...	7	6	193	170
Italian, ...	6	8	194	241
Japanese, ...	15	12	946	806
Jugo-Slav, ...	15	4	484	122
Latvian, ...	2	2	47	30
Norwegian, ...	65	58	1,301	1,268
Portuguese, ...	1	—	41	—
Panamanian, ...	1	—	31	—
Russian, ...	6	6	266	214
Spanish, ...	59	50	1,679	1,430
Swedish, ...	25	14	464	289
	1,625	1,451	94,861	80,204

NUMBER OF SHIPS ARRIVING FROM FOREIGN AND IRISH FREE STATE PORTS DURING THE YEAR 1931.

MONTH.	FROM INFECTED PORTS.										Total of A and B.						From Non-Infected Ports with or without Cargo.						Total from Foreign Ports.						From Irish Free State Ports. Ships.
	Class A direct, or with Inward Cargo.					Class B Light or with Outward Cargo.					Ships.			Crews.			Pass.			Ships.			Crews.			Pass.			
	Ships.	Crews.	Pass.	Ships.	Crews.	Pass.	Ships.	Crews.	Pass.	Ships.	Crews.	Pass.	Ships.	Crews.	Pass.	Ships.	Crews.	Pass.	Ships.	Crews.	Pass.	Ships.	Crews.	Pass.	Ships.	Crews.	Pass.		
January, ...	24	1,219	—	22	1,360	—	46	2,579	—	83	3,816	467	129	6,395	467	50													
February, ...	25	1,621	8	16	948	—	41	2,569	8	75	3,101	488	116	5,670	496	50													
March, ...	24	1,766	—	23	1,375	—	47	3,141	—	80	3,722	517	127	6,863	517	55													
April, ...	23	1,447	1	21	1,207	—	44	2,654	1	86	3,936	811	130	6,590	812	64													
May, ...	22	1,382	5	18	968	—	40	2,350	5	85	4,434	1,494	125	6,784	1,499	65													
June, ...	24	1,684	—	19	1,247	—	43	2,931	—	68	4,407	2,806	111	7,338	2,806	61													
July, ...	20	1,251	—	16	1,212	1	36	2,463	1	69	4,898	3,884	105	7,301	3,885	71													
August, ...	19	1,392	2	26	1,746	206	45	3,138	208	68	3,765	2,253	113	6,903	2,461	74													
September, ...	19	1,276	—	15	850	—	34	2,126	—	78	4,363	1,321	112	6,489	1,321	71													
October, ...	25	1,549	—	19	1,107	—	44	2,656	—	75	3,858	1,368	119	6,514	1,368	78													
November, ...	18	1,106	—	20	1,274	—	38	2,380	—	97	4,443	1,165	135	6,823	1,165	69													
December, ...	28	2,066	2	19	1,169	—	47	3,235	2	82	3,299	758	129	6,534	760	63													
Totals, ...	271	17,759	18	234	14,463	207	505	32,222	225	946	47,982	17,332	1,451	80,204	17,557	771													
1930, ...	316	22,300	16	255	14,854	3	571	37,154	19	1,054	57,706	22,312	1,625	94,860	22,331	668													

TABLE SHOWING DISEASES AND NUMBER OF CASES DURING
THE YEAR 1931.

Disease.	Total Number of Cases.	Cases found on Arrival.	Cases dealt with in other Ports.	Cases sent to Hospital in Glasgow.	Cases sent Home.	Deaths.
Plague, ...	—	—	—	—	—	—
Cholera, ...	5	—	5	—	—	—
Enteric Fever, ...	3	1	2	1	—	—
Diphtheria, ...	3	3	—	3	—	—
Scarlet Fever, ...	4	1	3	1	—	—
Smallpox, ...	8	—	8	—	—	—
Measles, ...	14	—	14	—	—	—
Whooping-cough, ...	19	5	14	—	5	—
Chickenpox, ...	22	2	20	1	1	—
Phthisis, ...	23	7	16	2	5	1
Venereal Disease, ...	43	28	15	1	27	—
Pneumonia, ...	23	13	10	10	3	7
Erysipelas, ...	3	—	3	—	—	—
Dysentery, ...	5	1	4	1	—	—
Malaria, ...	15	9	6	—	9	1
Influenza, ...	34	15	19	—	15	1
Mumps, ...	4	—	4	—	—	—
Tonsillitis, ...	11	7	4	—	7	—
Non-pulmonary Tuberculosis, ...	1	1	—	—	1	—
Scabies, ...	5	5	—	—	5	—
Other illnesses, ...	42	23	19	1	22	6
Totals, ...	287	121	166	21	100	16
1930, ...	374	208	166	53	155	24

During the year 1931, 280 merchant servicemen attended the clinic at Broomielaw for treatment of Venereal Disease.

PARROTS (PROHIBITION OF IMPORT) REGULATIONS (SCOTLAND), 1930.

Under the above regulations 20 vessels, with 126 parrots and 4 lovebirds, were dealt with, most of them being re-exported and a few destroyed. The increase in numbers over last year may be accounted for by the fact that one of the vessels had a consignment of 106 birds, in transit for Antwerp.

ALIENS ORDER, 1920.

All aliens intending to remain in this country for a period of three months or more are subject to medical examination. During the year 1931, 880 such persons were examined in 71 ships as follows :—813 on 41 ships from U.S.A., 38 on 21 ships from Canada, 29 on 8 ships from Continental ports and 1 ship from an Asiatic port. One medical certificate was issued for conditional landing of a case of chickenpox.

RETURN OF ALIEN PASSENGERS ARRIVING IN GLASGOW DURING 1931.

Nationality.				Non-Transmigrants.	Transmigrants.	Total.
Americans,	...	...	...	3,948	10	3,958
Europeans,	...	...	...	66	43	109
Asiatics,	...	...	...	3	—	3
Totals,	...	...	...	4,017	53	4,070
Do.	1930,	...	...	5,967	135	6,102

Emigrants.—During 1931, 141 ships carrying emigrants left the Clyde. Of these, 43 sailed for America, a decrease of four, and 98 sailed for Canada, a decrease of 17 compared with the previous year. Passenger ships sailing from the Clyde for Australia and New Zealand embark passengers at Liverpool.

The following is a return of emigrants and ships which left Glasgow during 1931 :—

Country.	Ships.	British Subjects.	Other Nationalities.	Total.
America,	43	5,336	3,062	8,398
Canada,	98	8,035	869	8,904
Totals,	141	13,371	3,931	17,302
Do.	1930, 162	32,649	6,622	39,271

RAT DESTRUCTION.

The work of issuing certificates to vessels under Article 28 of the International Sanitary Convention, 1926, has been carried out satisfactorily during the year. Every ship from foreign ports is boarded on arrival, not only at Greenock, but in the harbour proper, by members of the Port Sanitary staff. The officers satisfy themselves as to whether the ship's Deratisation Certificate is valid; as to the condition of the ship regarding rats; and as to whether she is from a plague-infected or plague-suspected Port. During a ship's stay in Port, and while cargo is being discharged, the ship is continuously observed for signs of rats. Traps are set and specimens submitted for pathological examination. When any doubt exists as to the degree of infestation of a ship due certification, traps are set, and the ship researched later by a second officer, so that an estimate of the rat population may be arrived at.

Ships from plague-infected or plague-suspected ports are required to have guards affixed to mooring ropes in such a manner that the passage of rats from ship to shore is prevented; or the moorings wrapped in canvas and tarred for about two feet, as they leave the ship and reach the wharf; cargo gangways withdrawn, or tarred, or whitewashed while the ship is "silent." Passengers' gangways

should be well lighted at night or removed, ship's gear periodically moved to prevent harbourage, and no accumulation of garbage allowed on deck while the ship is in port. Systematic trapping is also carried out. Rats caught alive, unless required for bacteriological examination, are drowned and then burned in the ship's furnace.

The Public Health (Deratisation of Ships) Regulations (Scotland), 1929.—These regulations provide for the periodic renewal of Deratisation or Deratisation Exemption Certificates as the case may be. If the Port Sanitary officer is satisfied that the ship is free from rats, or is being maintained in such a condition that the rat population is reduced to a minimum, an Exemption Certificate is granted; if, on the other hand, the ship is not maintained in such a manner, steps are taken to have the ship deratised. The Master must then make arrangements for the deratisation of the vessel. When the ship has been deratised to the satisfaction of the Medical Officer of Health, a Deratisation Certificate is issued.

Trapping and fumigation with sulphur—to which has been added a small proportion of sodium chlorate, are generally carried out by officers of this department. When HCN is the fumigant used, the work is carried out by contractors who notify this Department as to the date and time of fumigation, so that the work can be carried out under our supervision.

One hundred and fifty-six vessels were deratised during the year. Of these 132 were from infected ports and 24 from non-infected ports. In 276 instances, Certificates of Exemption from fumigation were granted, where the ship was of recent construction, free from rats, or where the rat population was found to be at a minimum. After fumigation, the vessel is searched, and the number of dead rats recovered is noted.

The following table summarises the results of ship deratisation by SO₂, HCN, and trapping during the year:—

	Number of Ships Deratised.			Ex- emptions	Number of Rats Recovered.
	By SO ₂ .	By HCN.	By Trap- ping.		
From Infected Ports, ...	86	21	25	—	1,710
From Non-Infected Ports,	15	5	4	—	154
	101	26	29	276	1,864

The total number of rats caught by trapping on ships not requiring certification were as follows:—Ships from Infected Ports, 509; Ships from Non-Infected Ports, 65; on docks and other premises, 351; total, 925.

The total number of rats caught by trapping and found dead after fumigation, are classified in the following table:—

Brown Rat.		Black Rat.		Total.
Rattus Norvegicus.	Rattus Rattus.	Rattus Alexandrinus.	Rattus Frugivorus.	
261	824	680	1,024	2,789

Of the 2,789 rats killed, 344 were submitted to the City Bacteriologist for examination for plague bacilli, with negative result. Of the total number of rats disposed of 1,721 were males and 1,068 females.

Provisional Standards for Fumigation of Ships.

1. Sulphur Dioxide.

(a) If the gas is generated by burning sulphur, 3 lbs. of sulphur per 1,000 cubic feet of space. Minimum time of exposure, 6 hours.

Only sulphur of good quality must be used, and not more must be placed in any receptacle than will be completely burned out in the time prescribed.

(b) If liquified sulphur dioxide (Sulphume) is used in place of sulphur dioxide generated by burning, 2 lbs. of the liquified gas are required for each lb. of sulphur employed by burning. Minimum time of exposure, 6 hours.

2. Hydrogen Cyanide.

(a) If the gas is generated by the vaporisation of liquid hydrogen cyanide:—For Holds, Provision Store-rooms, and other Rat-infested Compartments, 2 ozs. per 1,000 cubic feet. For Living Quarters and Super-structures, and other spaces not used for stores or cargo, 1 oz. per 1,000 cubic feet. Minimum time of exposure, 2 hours.

(b) If the gas is generated by the exposure of Zyklon B:—For Holds, Provision Store-rooms, and other Rat-infested Compartments, 2 ozs. of the HCN net content of each container per 1,000 cubic feet. For Living Quarters and Super-structures and other spaces not used for stores or cargo, the amount may be reduced to 1 oz. per 1,000 cubic feet. Minimum time of exposure, 2 hours.

Note.—Zyklon B is packed in containers and HCN net content in ounces and grams, is printed on the label of each container, and these figures may be used as the basis of dosage. (The actual gross weight of each container is of no importance.) *Parts of containers must not be used*, and suitable multiples of different size containers to the next nearest higher total amount should be employed.

(c) If the gas is generated by the admixture of sodium cyanide, sulphuric acid and water, 5 ozs. of sodium cyanide for each 1,000 cubic feet of space. Minimum exposure, 2 hours.

All the above methods were found to compare favourably with one another for the purpose of rat destruction, the choice of one method in preference to another being left to the shipping companies or their agents. With a view to keeping the requirements of the Public Health (Deratisation of Ships) Regulations (Scotland), 1929, in front of masters, explanatory circulars were again issued to vessels on arrival during the year.

FOODSTUFFS DETERIORATED THROUGH SULPHUR FUMIGATIONS.

The Board of Trade Inspector of Ships' Provisions, having reported that a quantity of ships' stores had had to be condemned owing to contamination with sulphur dioxide, and that a report on the subject was to be forwarded to London, it was arranged to obtain samples of various foodstuffs from ships' stores which had been subjected to sulphur fumigation. The City Analyst reported on eleven samples as under:—

“The following are the results of my analyses of 11 samples. of foodstuffs taken from the native storeroom on board the S.S

..... The storerooms had been subjected to fumigation with burning sulphur and sodium chlorate and complaints had been received of the tainting of the foodstuffs by means of the fumigation.

ANALYSIS.

							Sulphur Dioxide in parts per Million.
(1) Capsicum Pods,	...	...	...	...	...	...	1568.0
(2) Rice (i),	...	...	...	...	...	...	76.8
(3) Rice (ii),	...	...	...	...	...	...	51.2
(4) Flour, ...	...	...	...	...	...	...	524.8
(5) Lentils,	...	...	...	...	...	...	1107.2
(6) Coriander Seed,	...	...	...	...	...	...	1267.2
(7) Dried Fish,	...	...	...	...	...	...	2572.8
(8) Tumeric,	...	...	...	...	...	...	262.4
(9) Ginger,	...	...	...	...	...	...	326.4
(10) Salt, ...	...	...	...	...	...	...	<i>Nil</i>
(11) Tamarinds,	...	...	...	...	...	...	428.8

No odour of sulphur dioxide was observable in the case of any of the samples.

“It is evident from the above results that these samples, however, with the exception of the salt, have been contaminated with sulphur dioxide, in some cases to a considerable extent. It is difficult to express a definite opinion as to the impairment of their dietetic properties. In the case of the capsicum pods, the coriander seed, the tumeric and ginger, these are used as flavouring agents and consequently only small quantities will be employed in the preparation of a meal. In the case of the other foodstuffs, it is probable that a certain proportion of the sulphur dioxide will be expelled from the foodstuffs during the process of cooking.

“Yours faithfully,

“F. W. HARRIS, F.I.C.”

The Department cannot accept responsibility for alleged damage to flour or cereals as the onus of removing stores, likely to become tainted, lies with the shipping companies or agents. A notice to this effect is served on Masters of vessels prior to fumigation.

NUISANCES ON SHIPBOARD.

Inspections and re-inspections to the number of 2,468 of vessels in harbour were made during the year. The visits to oversea steamers numbered 1,450, and the revisits 645. In oversea sailing vessels, one inspection was made and one revisit, while 281 coasting steamers and 23 sailing craft were examined, revisits being paid to 55 of the former and 12 of the latter. 149 verbal warnings were given to masters where nuisances of a minor nature were found, and 126 intimations and 6 notices (under the Public Health Act) were served where defects existed. 413 verbal instructions were given, and 152 notices served on masters of vessels re locking-up of water-closet accommodation while vessels were in port.

The nuisances discovered numbered 2,503—in forecastles, rooms, etc., 696, and water-closets, washhouses, etc., 357; while structural defects were found in 572 instances—465 within crews' quarters, and 107 in water-closet and lavatory compartments. General complaints were recorded in 878 instances.

Sanitary Defects and Nuisances.—The following table shows the nuisances found on board vessels arriving in the harbour:—

ARISING FROM STRUCTURAL DEFECTS.

<i>Forecastles, Rooms, &c.—</i>	1929	1930	1931
Overhead decks leaking,	104	95	60
Ports defective,	205	155	153
Skylights out of repair,	4	2	3
Without scupper-pipe or same cemented, ...	1	1	2
Ventilators plugged, out of repair, or unshipped,	3	2	6
Without bogies or funnels, or such out of repair,	14	19	18
Inadequately lighted or ventilated,	19	17	14
Radiators or steam-pipes defective,	18	17	24
Doors to forepeak and forecastle broken, ...	4	6	8
Ship's sides leaking,	2	1	1
Anchor chain exposed by sheathing being out of repair,	1	2	1
Doors of food lockers and seats out of repair, ...	90	99	152
Requiring wood sheathing or cork-spraying for "sweat,"	4	2	5
Hawse pipes defective,	5	6	4
Floors broken and out of repair,	4	10	6
Bulkhead between forecastle and W.C. compartment broken,	2	1	3
Scuppers required,	3	2	1
Waste pipe leaking,	2	3	4
	<hr/> 485	<hr/> 440	<hr/> 465

Water-closets, Urinals, Washhouses, &c.—

Flushing apparatus, basins or discharge pipes defective,	33	25	28
New water-closet required,	16	12	14
Ports defective,	3	4	3
Floor and woodwork out of repair,	2	4	2
Doors broken and new locks required (w.c.'s must be locked while ship is in harbour), ...	21	18	20
Ventilators plugged,	4	3	3
Woodwork of w.c. basin broken,	30	32	29
Compartments defective in light and ventilation,	15	14	8
	<hr/> 124	<hr/> 112	<hr/> 107

ARISING FROM MISUSE.

Forecastles, Rooms, &c.—

Alleyways and companionways dirty,	90	101	110
Floors, mat coverings, ceilings, woodwork, &c., dirty,	194	185	190
Interior of ships' sides or woodwork dirty (to be limewashed or repainted),	125	131	126
Galleys dirty,	16	16	19
Tables and benches dirty,	244	246	218
Scuppers choked (water lying stagnant), ...	19	15	18
Bunks dirty,	17	19	15
	<hr/>	<hr/>	<hr/>
	705	713	696

Water-closets, Washhouses, &c.—

Floors, ceilings and woodwork dirty,	111	94	108
Basins, hoppers, or troughs fouled, corroded, or choked,	111	100	109
Scuppers choked,	40	29	37
Wash-house dirty,	5	7	15
Interior requiring limewashing or repainting, ...	47	64	84
Waste-pipe defective,	4	3	4
	<hr/>	<hr/>	<hr/>
	318	297	357

GENERAL NUISANCES.

Food lockers dirty,	304	286	278
Bilges (hold) dirty,	66	67	66
Gear and foodstuffs stored in sleeping compart- ments,	14	12	16
Drinking-water tanks dirty and in need of re-cementing,	70	74	72
Drinking-water tanks out of repair or uncovered,	6	2	4
Accumulation of rubbish in forecastle or on deck,	143	72	136
Forecastle infested with vermin,	121	184	168
Bedding dirty or verminous,	91	159	137
Bilges ventilating into forecastle,	1	—	1
	<hr/>	<hr/>	<hr/>
	816	856	878

The following table shows the number of oversea and coastwise ships inspected in the harbour during the years 1929-1931:—

			Inspections.			Re-inspections.		
			1929	1930	1931	1929	1930	1931
Oversea Steam,	...	...	1,650	1,624	1,450	726	636	645
„ Sail,	...	...	1	1	1	1	1	1
Coast Steam,	...	...	355	311	281	31	48	55
„ Sail,	...	...	15	24	23	6	13	12
Intimations,	...	...	...	...	...	205	191	126
Warnings,	...	...	...	...	...	128	102	149
Notices,	...	...	...	...	...	6	7	6
Letters to other Port Authorities,	...	...	...	...	...	52	58	54
<i>Nuisances—</i>								
Functional,	...	...	...	...	...	1,023	1,010	1,053
Structural,	...	...	...	...	...	609	552	572
General,	...	...	...	...	...	816	856	878

Of the total arrivals, 1,161 were British and 290 vessels sailed under foreign flags, the latter including 21 different nationalities, Americans, Norwegians, Spaniards, Germans, Jugo-Slavians, Swedes and Finns predominating.

Anthrax.—Goat-skin thongs continue to be used as bindings for orange boxes from various ports in Spain. During the year samples have been examined by the Bacteriologist for the presence of anthrax bacillus. Several positive findings were obtained, and the results communicated to the Department of Health for Scotland. Samples of imported hides were also examined, with negative results.

Rags, Hair, Hides and Bones.—The following table shows the imports of rags, hair, hides and bones, with the source of origin and number of shipments:—

Source of Origin.			No. of Ships.	Rags. Bbles.	No. of Ships.	Hair (Various) Bbles.	No. of Ships.	Hides (Various) Bbles.	No. of Ships.	Bones. Bags.
Europe,	...	...	69	965	27	695	58	24,111	1	103
Canada,	...	...	—	—	10	916	—	—	—	—
United States,	...	...	2	31	52	5,469	8	2,405	—	—
South America,	...	...	—	—	9	438	7	20,867	3	675
Australia & N. Zealand,	...	...	—	—	—	—	22	6,648	—	—
India,	...	...	—	—	—	—	17	422	7	1,305
South Africa,	...	...	—	—	—	—	7	216	4	275

In addition to the foregoing, there is a considerable quantity of rags imported from Irish Free State ports.

UN SOUND FOOD REGULATIONS.

The following table shows the character and quantity of the food-stuffs imported direct during 1931 (but does not include coastwise or transhipped cargoes), a percentage of which was examined by the Food Inspectors before removal:—

Article.	Weight.		Article.	Weight.	
	Tons.	Cwts.		Tons.	Cwts.
Apples,	36,612	—	Lemons,	3,653	4
Apricots,	242	3	Liquorice,	19	13
Almonds,	1,424	13	Meal (various),	9,694	11
Bananas,	143	6	Meats (canned, &c.),	3,369	1
Bacon,	26	4	Melons,	2,305	18
Baking Powder,	95	3	Milk (canned),	165	2
Barley,	232,609	2	Milk (dried),	435	6
Butter,	3,788	18	Molasses,	31	16
Cereals (Oats, Rye, &c.)	142,231	11	Macaroni,	262	11
Cheese,	5,943	17	Nuts (various),	2,523	13
Coffee	5	1	Oils (various),	25,779	6
Cocoa,	83	9	Onions,	51,936	12
Condiments,	7,506	14	Oranges,	31,542	19
Confectionery,	421	13	Orange and Lemon Peel,	242	2
Cream of Tartar,	465	—	Peaches (canned),	1,171	6
Eggs,	73,962	11	Pears,	2,826	2
Eggs (liquid),	619	2	Pears (canned and dried),	2,593	13
Eggs (albumen),	497	11	Pineapples,	1,886	18
Fish (canned, &c.),	667	9	Plums (canned and dried),	1,220	16
Fruits (canned),	2,691	6	Pomegranates,	483	1
Fruits (dried),	6,822	13	Potatoes,	4,943	3
Fruit (pulp),	614	1	Peas,	17,226	10
Flour (various),	114,571	5	Rice,	6,448	2
Farinaceous Foods,	1,358	19	Sundries,	10,862	6
Glucose,	4,336	19	Sugar,	5,408	12
Grapes,	3,747	8	Syrup,	110	1
Grape-Fruit,	1,695	14	Tomatoes,	55	6
Ham,	5,298	15	Tomatoes (canned),	1,122	6
Honey,	147	9	Vegetables (canned),	1,192	2
Lard (pure),	3,806	6	Wheat,	215,070	8
Lard (compo),	196	7			
<i>Total weight,</i>			847,214 tons 15 cwts.		

The following foodstuffs were found unfit and disposed of to the satisfaction of the Medical Officer of Health:—

Article.	Weight.		Article.	Weight.	
	Cwts.	Qrs.		Cwts.	Qrs.
Apples,	43	3	Fruits (canned),	—	2
Apricot Pulp,	48	—	Grain (wheat, etc.),	470	—
Bananas,	20	—	Meats (canned),	4	1
Cream of Tartar,	2	2	Milk (canned),	437	—
Desiccated Coconut,	5	2	Oranges,	7,849	—
Fats,	504	3	Pears,	184	3
Flour,	602	2	Pork and Beans,	—	2
Potatoes,	8	2			
<i>Total weight,</i>			10,181 cwts. 2 qrs.		

The foregoing table shows the great variety of the foodstuffs inspected and dealt with. The method of procedure in each case is similar. The suspected foodstuffs are detained for further inspection,

the consignee is communicated with, and a suitable time arranged for the re-examination of the material. As a rule, the consignees, on being satisfied as to the unsoundness of the food, are amenable to reason, and empower the inspector to have the condemned food disposed of, thereby obviating the necessity for obtaining a warrant from the Sheriff or Magistrate. Much time is often taken up in examining and supervising the reconditioning of consignments. The following are examples of this:—

Damaged Pears.—A consignment of pears which arrived from Vancouver was found to show a varying degree of waste. The consignment, which consisted of four car-loads, each containing 511 boxes, was re-examined, and it was agreed that three of the car-loads could be delivered to the consignees subject to reconditioning. The remaining car-load was destroyed, amounting to 182 cwt. The decay was found to be due to natural causes.

Damaged Cream of Tartar.—Thirty-three kegs of cream of tartar from Spain were found to be in a damaged condition. The kegs were stained a deep red, and had been damaged apparently by grape juice which had been stowed in the same hold. The cream of tartar was caked and had, in the majority of the kegs, absorbed a considerable quantity of the grape juice. It was agreed to allow the consignee to recondition the damaged material in a store here, subject to supervision. Several visits were paid during the process of reconditioning and a final examination showed 2 cwts. 2 qrs. of the cream of tartar to be unfit for human consumption, this being condemned and removed for destruction.

Damaged Flour.—A motor vessel arrived with a general cargo, part of which consisted of 47,900 bags of wheaten flour. A cursory examination showed that the flour had become damaged by mineral oil, due to a leaking feed pipe from the oil tanks to the boiler fires. A large number of the bags had also become tainted with the oil fumes to a varying degree, owing to their close proximity to the damaged flour. A Detention Order was placed on the parcel and the consignees advised. The subsequent proceedings for reconditioning were long and tedious. A thorough examination of all damaged and tainted bags was made on various dates, when it was found that 71 bags were oil stained, 27 heavily tainted and 145 lightly tainted. After report by the analyst and application of baking tests, the last mentioned were released, the remainder to be used for purposes other than human consumption.

Imported Salt from Germany.—A communication was received from the Department of Health for Scotland with reference to the importation of German salt containing particles of rock and insoluble calcium, and whether steps were being taken to avoid injury to health, or to prevent its sale for human consumption. There is a fairly large and steady importation of salt from Germany to Glasgow, and during a period of three months 1,951 tons are recorded as having arrived at the port. This may be classified under three heads—rock, bulk and

bagged. The rock and bulk salt (which is merely crushed rock salt) are imported and sold for purely technical purposes—importation being confined to two firms in Glasgow. The bagged salt is occasionally crushed rock salt (from fine strata), but for the most part consists of “manufactured” salt—salt which has been prepared from brine. After full inquiry and submission of samples for analysis, there is no reason to believe that salt of the kind suggested is being used for other than technical purposes.

Imported Fats.—Considerable difficulty is still being experienced with this material, particularly with parcels of “edible” fats, *i.e.*, premier jus, oleo oils, &c., which arrive periodically without the necessary certificate attached to the cask, or other container. During the year several consignments have been detained through lack of proper certification, but were subsequently released upon the production of a “covering certificate” duly signed by the Veterinary Inspector of the place of origin, which guaranteed the material as having been prepared from healthy animals. While a considerable volume of grease still arrives coastwise, there is reason to believe that a proportion is now diverted, and arrives in Glasgow by routes other than through the Port.

PUBLIC HEALTH (PRESERVATIVES, &c., IN FOOD) REGULATIONS (SCOTLAND), 1925.

The above regulations apply to all imported articles of foodstuffs except where these are intended for re-export or for use as ship’s stores.

Cream.—Fairly large consignments of cream arrive from the North of Ireland and Irish Free State Ports. During the period from January to December, 12 samples of cream were examined for boron preservative with negative result.

Ham and Bacon.—During the year various consignments of ham and bacon in small lots, usually two boxes at a time, and packed in borax arrived. In every instance the arrivals of consignments were notified by the consignees and immediately the goods were sold the name of the purchaser was also supplied. The premises of the purchasers were visited and it was noted that, in all cases, the ham and bacon were intended for and would only be used for ships’ stores. This being in conformity with the regulations, no further action was considered necessary. The number of boxes so dealt with was three of ham and 62 of bacon.

Arsenic in Apples.—Of 42 samples of various brands of apples, 28 were reported as containing no arsenic. The remaining 14 samples contained arsenic within the prescribed limit. Twenty-four of the samples were taken from apples landed here from North American ports, and 18 were from Australasian and Canadian ports. Of the 18 samples taken from these latter ports, the arsenic found was well within the limit. It was not considered necessary to condemn any of the fruit.

FOODSTUFFS EXAMINED.

During the year foodstuffs were sampled and submitted to the City Analyst, who reported as follows:—

Article.	Samples Reported.		Fit for Human Consumption.	Unfit for Human Consumption or not in conformity with Regulations.	Notes on Defective Samples.
Almonds,	1	—	
Apples,	40	2	Damaged and contaminated with coal dust.
Apricot Pulp,	1	1	Burst and blown. 48 cwts. condemned.
Baking Powder,	2	—	
Blackberries,	2	—	
Butter,	30	—	
Cereals (Grape-Nuts, Force, &c.),	13	2	Ships' stores, contaminated with SO ₂ .
Coffee and Coffee Substitutes,	4	—	
Cheese,	3	—	
Confectionery,	13	—	
Cream,	12	—	
Citric Acid,	1	1	Slightly deficient in citric acid.
Cream of Tartar,	11	1	Stained with grape juice. 2½ cwts. condemned.
Desiccated Cocoanut,	—	2	Damaged by sea-water. 5½ cwts. condemned.
Egg-Yolk (liquid),	3	—	
Egg-Yolk (dried),	2	—	
Egg-Albumen,	4	—	
Egg Whole (liquid),	2	—	
Fats (various),	19	9	Contained an excess of free fatty acids.
Fish (canned, &c.),	10	1	Ships' stores, contaminated with SO ₂ .
Flour (various),	13	8	Damaged by sea-water and fuel oil. 122½ cwts. condemned.
Fruits (canned),	37	—	
Fruits (dried),	55	—	
Fruit Pulp,	2	—	
Gelatine,	1	—	
Glucose,	4	—	
Grain (Wheat, Maize, &c.),	5	3	Contaminated with fuel oil. 400 cwts. condemned.
Grapes,	1	—	
Grape Fruit,	4	—	
Ginger (dry and wet),	6	—	
Glycerine,	1	—	
Honey,	6	—	
Jam,	1	—	
Lard,	18	—	
Lard Compo,	4	—	
Macaroni,	1	—	
Meats (canned, &c.),	21	—	
Milk (canned),	4	1	Not in conformity with Regulations. 437 cwts. condemned.
Milk (dried),	6	—	
Mineral Water,	1	—	
Nuts,	3	—	

SECTION VIII.

HOUSING.

A preliminary survey of the census of this year indicates clearly the movement of the population which has taken place within the boundaries of the city during the intercensal period. It is impossible to measure accurately the exodus of citizens to the new suburbs surrounding the periphery of the city, but within the city itself there has been, with few exceptions, a marked reduction in the population of the wards in the centre, and an equally marked increase in the population of the wards forming the boundary of the city.

Of the thirty-seven wards of the city, fifteen show increases of population, the largest being in Whiteinch, Ruchill, Cathcart, Provan and Pollokshields Wards. Of the twenty-two wards showing decreases of population, the most marked are Cowcaddens, Gorbals, Dalmarnock, and Mile-end Wards. As was to be expected, the wards showing increases are those in which housing activities have been greatest, while it is significant that the wards showing the greatest decreases in population are those in which action by the Committee on Housing has been greatest in connection with the condemnation of insanitary houses. The policy of the Committee has been to deal with this type of house according to the degree of unfitness, and as age largely determines the sanitary defects of a house it follows that the main operations have taken place in the central wards of the city.

The movement of the population towards the periphery of the city is to be commended from the health point of view. There are still those who believe that workers should live near their place of employment, but there are only a few types of employment in which this condition is an essential, *e.g.*, the stevedore class. With modern cheap transport, there is nothing to commend the haphazard juxtaposition of factory, office, and private dwellings—all too common in the central parts of the city. The new houses have been built under conditions which compel proper spacing out of properties, with the resulting adequate air-space for houses and tenants. A critical analysis of the information contained in the census bearing upon the social and housing conditions of the population is under preparation.

Housing (Scotland) Act, 1930.—Certain unforeseen difficulties emerged during the year in connection with the working of the Housing (Scotland) Act, 1930. Section 14 of this Act, which deals with the repair of insanitary houses, differs from the repealed section 3 of the 1925 Act, in that the words "not in a reasonable state of repair" have been replaced by the words "in any respect unfit for human habitation"; and, further, it is now necessary for the Local Authority to indicate the works required to be carried out, and that those works will render the houses fit for human habitation.

In Glasgow, there are approximately 13,000 houses which are regarded as unfit for human habitation, and in the great majority of these no reasonable expense would render them fit in all respects for human habitation. It is impossible for the Local Authority to condemn all these houses until alternative accommodation is available for the dispossessed tenants. Under the 1925 Act, it was possible to have sufficient repairs carried out on this type of property to prevent it becoming dilapidated, but under the new Act the hands of the Local Authority are tied, and it has been decided that repairs under Section 14 will only be asked for in this type of property when, for one reason or another, it will be impossible to have the property condemned for some years. The present practice is to deal with the sanitary defects of such properties under the nuisance section of the Public Health Act. This explains the small number of inspections made under Section 14 (1) of the 1930 Act during this year. Further, it will be noted that comparatively few closing orders have been made during this year, due to the fact that under Section 16 (3) of the Act such an order can only be made on a house or houses in a tenement where all the houses in the tenement do not belong to the same owner. This condition is infrequent in Glasgow, and when it is necessary to close, say, a basement house or houses in an otherwise habitable property, all belonging to the same owner, the only expedient is to proceed by a demolition order, and after the tenants have been removed from the house or houses delay any further procedure.

The alternative methods of dealing with large groups of property under the 1930 Act are by clearance areas or improvement areas. The necessary condition with regard to the clearance area is that all the dwelling-houses in that area, or the greater part of these dwelling-houses, are by reason of disrepair or sanitary defects unfit for human habitation, or that by reason of their bad arrangements they are injurious or dangerous to the health of the inhabitants of the area, and that the most satisfactory method of dealing with the conditions in the area is the demolition of all the buildings therein.

An improvement area differs in respect that in addition to disrepair or sanitary defects of the dwelling-houses in an area, there is also overcrowding, and that these conditions can be effectively remedied without the demolition of all the buildings in the area.

The theory underlying the improvement area part of the Act is threefold. The Local Authority can acquire property in the area, and demolish or recondition it. They provide new houses for the dispossessed tenants, and apply bye-laws to regulate overcrowding in the area. These bye-laws apply equally to the Local Authority's houses and to the private property in the area. The weak point is that the Local Authority have no power over the private property in the area apart from the bye-laws, and cannot insist on a proper redistribution of the tenants in the area. There is no obligation on the owner of a private property which is overcrowded to give his houses to the small families dispossessed from the demolished properties. The Local Authority might be required to erect houses for the small families

dispossessed from houses demolished in the area, and at the same time for the overcrowded families dispossessed from the private property under the bye-laws.

Local Authorities have been advised that the more stringent they make their standard for overcrowding in the area, the greater financial benefit will accrue under the Unit Grant of the Act. It is obvious, of course, that the more stringent the standard is, the greater number of houses will have to be provided by the Local Authority to re-house the surplus population.

As was indicated in last year's report, a survey of the uninhabitable houses in the city was made towards the end of 1930, to enable the Local Authority to submit a statement to the Department of Health of the measures proposed to be taken during the three years commencing 1st January, 1931, for dealing with the housing conditions in their district, and the provision of further housing accommodation. The following table indicates the number of houses regarded as unfit for human habitation in the five public health divisions of the city at November, 1930.

The Committee on Housing on 17th December, 1930, after consideration, instructed the Town Clerk to advise the Department of Health that, so far as houses unfit for human habitation were concerned, there were 13,568 in the city, and that the Committee proposed to build 7,500 houses during the three years, 1931-33. The Town Clerk was also instructed to report that the Committee on Housing proposed to build during the same three years, 9,000 houses for the purpose of abating overcrowding, and 3,000 to meet the growth of population.

The Committee on Housing have instructed that schemes be prepared in the Garngad and Nitshill Districts of the city, affecting 370 and 136 insanitary houses respectively. The Sub-Committee have also given approval to the preparation of schemes in the Denbeck Street area in Shettleston (which includes 112 uninhabitable houses) and the Landressy Street area in Bridgeton (which includes 186 uninhabitable houses); and have under consideration an area in the Dalmarnock Ward, in which there are 650 uninhabitable houses, the sites of which would be suitable for re-housing purposes. There is also in the Garscube Road area a group of properties suitable for a clearance area, the site of which is, in the opinion of the Director of Housing, suitable for re-housing. This area includes 213 uninhabitable houses. There are thus in course of preparation or under consideration schemes involving approximately 1,670 unfit houses, and the progress of these schemes depends on the position of the Local Authority with regard to the provision of alternative accommodation for the dispossessed tenants.

The Department of Health have laid particular emphasis on the provision of re-housing accommodation in advance of the displacement of persons affected under the powers of the Act of 1930. They advise that re-housing operations be commenced before any clearance, compulsory purchase, demolition or closing orders are made, and that these orders should not be made until it is clear that the re-housing accommodation will be available by the time the displacement is due in terms of the orders.

GLASGOW.—STATEMENT OF NUMBER OF UNINHABITABLE HOUSES AND PERSONS HOUSED THEREIN.

	HOUSES.				Total Houses for Division.	Inhabitants		Total	
	Number of Tenements	One Apartment.	Two Apartment. ments.	Three Apartment. ments and over.		Total.	Adults.		Children.
CENTRAL—									
Front Lands,	177	793	1,289	175	2,581	7,308	2,694	10,002	
Back Lands, ...	29	161	150	13					
NORTHERN—									
Front Lands,	244	1,548	1,551	94	3,642	10,043	4,990	15,033	
Back Lands, ...	43	314	125	10					
EASTERN—									
Front Lands,	512	1,455	1,578	267	4,357	11,868	4,541	16,409	
Back Lands, ...	184	637	395	25					
SOUTH-EASTERN—									
Front Lands,	179	958	874	121	2,304	6,555	2,538	9,093	
Back Lands, ...	43	195	146	10					
SOUTH WESTERN—									
Front Lands—	48	324	211	33	684	1,882	766	2,648	
Back Lands, ...	12	34	80	2					
Front Lands,	1,160	5,078	5,503	690	—	37,656	15,529	53,185	
Back Lands, ...	311	1,341	896	60					
GRAND TOTAL,	1,471	6,419	6,399	750	13,568				

It is evident from the table on page 153 of the position with regard to Representations under Section 16 of the Act that the closure of houses is too far in advance of the ability of the City Improvements' Department to offer alternative accommodation to the affected tenants. As this is the crux of the clearance of insanitary properties, it may be considered in the light of recent experience.

Re-housing of Dispossessed Tenants.—The following table shows how the tenants affected by the completed slum clearance schemes of 1923 to 1928 have been re-housed as at 31st December, 1931 :—

	Removed Elsewhere.	Substitution.	To Re-housing schemes.
1923,	177	152	1,516
1926,	144	168	791
1927,	238	169	684
1928,	182	140	816
	<hr/> 741	<hr/> 629	<hr/> 3,807
	<hr/> <u>=5,177</u> <hr/>		

Thus of a total of 5,177 tenants dispossessed, 741, or 14 per cent., have not availed themselves of the re-housing provision offered by the Corporation, while 629 families originally in the slum clearance schemes have by substitution with other families been provided with housing accommodation outwith the scheme. It is apparent, therefore, that in any clearance scheme it is not necessary to make provision to re-house every family affected, but only some 86 per cent. of these, as, while 26 per cent. of the original tenants do not occupy the new houses provided by the Corporation, 12 per cent. of houses are necessary to enable that number of tenants to substitute other suitable families for the new houses. It cannot be assumed that by refusing to permit of substitution the total 26 per cent. of tenants could obtain accommodation outwith re-housing schemes.

During recent years the Committee have authorised the occupation of houses provided for slum clearance families by families from other properties, *e.g.*, those condemned by the Master of Works as "dangerous buildings," from houses demolished for the purpose of street widening, etc. Whenever possible, action is also taken by the Medical Officer on such properties when they can be condemned as unfit for human habitation, but occasionally this cannot be done. It is impossible to make any estimate of the number of houses likely to be dealt with in such manner by the Master of Works during any year, as conditions usually arise suddenly and unexpectedly, but the numbers dealt with during the last six years are as follows :—

Year.	Taken down.	Closed.
1926,	32	—
1927,	364	23
1928,	135	—
1929,	267	—
1930,	96	50
1931,	235	—

It will, therefore, be necessary to budget in each year for a considerable call on re-housing accommodation to meet conditions which the new houses were not provided for, but for which they may be properly used in the great majority of cases.

Against this demand there may be put the houses which become vacant in the various re-housing schemes in the city. This varies, but the Manager of the City Improvements' Department states the number to average 18 per month during recent times. The actual number of re-lets in schemes during 1931 was 204. While it may be anticipated that for some years the number of re-lets will increase as more new houses are built, it should be recognised that with the reduction in the number of low rented insanitary houses in the city the number of removals in re-housing schemes will correspondingly diminish.

The two variable quantities—action by the Master of Works and houses vacated in re-housing schemes—make accurate calculations of re-housing requirements impossible. This, however, is not of immediate importance, as for several years it will always be possible by the closure of unfit houses to prevent there being any unlet houses in the re-housing schemes.

The whole question thus crystallises down into the provision of alternative accommodation for tenants of insanitary houses. The declared policy of the Committee to undertake the building of 7,500 houses for this purpose by the end of 1933 would, when completed, bring the problem into manageable proportions. The standard of what constitutes a house unfit for human habitation is rising, and a considerable number of houses become unfit by the process of time in each year. It will, therefore, be necessary for a fresh survey to be made when the Corporation's three years' programme is completed to enable the Committee on Housing to consider its policy again.

HOUSING (SCOTLAND) ACT, 1930.

For the purpose of Section 14 (1) of the above Act, 183 inspections were made during the year. The details as to inspections, notices issued, and defects found are as follows:—

Division.	Inspections.	Notices Issued.	No. of Defects.	No. of Houses Affected.
Central, ...	—	—	—	—
Northern, ...	—	—	—	—
Eastern, ...	—	—	—	—
South-Eastern, ...	—	—	—	—
South-Western, ...	183	9	79	35
	183	9	79	35

The work was carried out by the owners in all cases, and no work was required to be done by the Local Authority.

CLOSING ORDERS.

For the purposes of Section 16 of the 1930 Act, 1,799 inspections were made. The following table shows the position as at 31st December, 1931, of properties represented in the years 1928, 1929 and 1930 in respect of which further action was taken during the year, and of properties represented during 1931.

Number of Houses.					Number of Families.			Remarks.
Total.	Demolished.	Closed but not demolished.	Still Occupied.	Transferred to Rehousing Schemes.	Substituted for Families transferred.	Removed Elsewhere.		
<i>Properties represented in 1928—</i>								
22-34 Parkhouse Lane (F.L.), 22	22	—	—	10	2	3	7 houses unoccupied at time of representation	
<i>Properties represented in 1929—</i>								
1 Rutherford Lane, ...	10	—	10	—	9	—	1	
5 „ „ ...	8	—	8	—	7	—	1	
So. Cawdercuilt, Blackhill Rd.	5	5	—	—	—	—	1	4 houses unoccupied at time of representation.
197 Centre Street, ...	4	—	4	1	2	1	1	Closed under arrangement with Owners. Not for demolition.
<i>Properties represented in 1930</i> <i>(under 1925 Act)—</i>								
59 Glebe Street, (F.L.), ...	6	6	—	—	5	1	—	
59 „ „ (B.L.), ...	5	5	—	—	3	2	—	
9 Abercromby Street (So. B.L.),	4	4	—	—	2	—	2	
9 „ „ (North B.L.),	4	4	—	—	2	—	2	
23-25 Bankier Street (F.L.),	7	7	—	—	—	—	7	
210 Tollcross Road (B.L.), ...	10	10	—	—	7	—	3	
51-53 Megan Street (F.L.), ...	15	15	—	—	9	—	6	
<i>Properties represented in 1930</i> <i>(under 1930 Act)—</i>								
4 Warroch Street (F.L.), ...	2	—	2	—	1	1	—	Basement houses.
85 Stobcross Street (F.L.), ...	3	—	3	—	—	1	2	„ „
3-5 Whitehall Street (F.L.),	3	—	3	—	—	—	3	„ „
38 Hydepark Street (F.L.),	2	—	2	—	1	—	1	„ „
92 William Street (F.L.), ...	1	—	1	—	—	1	—	„ „
3 Cadzow Street (F.L.), ...	7	—	—	7	—	—	—	„ „
5-9 Richard Street (F.L.), ...	4	—	4	—	1	—	3	„ „
26 Kelvinside Avenue (F.L.),	2	—	2	—	—	—	2	Basement houses.
1624 Maryhill Road (F.L.),	2	—	2	—	1	—	—	1 house unoccupied at time of representation.
16 Acorn Street (B.L.), ...	8	8	—	—	8	—	—	
11, 17, 23, 29 Falfield St. (F.L.),	64	64	—	—	48	3	12	1 house unoccupied at time of representation.

	NUMBER OF HOUSES.				NUMBER OF FAMILIES.			REMARKS.
	Total.	Demolished.	Closed but not Demolished.	Still Occupied.	Transferred to Rehousing Schemes.	Substituted for Families Transferred.	Removed Elsewhere.	
<i>Properties represented in 1931—</i>								
29 Deanside Lane, (F.L.), ...	4	4	—	—	2	2	—	
38 Gullane Street (B.L.), ...	7	—	2	5	12	—	—	
14 Blackfriars Street (F.L.), ...	19	—	—	19	—	—	—	
21 Wellington Lane (F.L.), ...	16	—	12	4	6	1	5	
90 Wellington Lane (F.L.), ...	8	—	8	—	5	12	1	
10 Renfrew Street (F.L.), ...	12	—	—	12	—	—	—	
14/16 Renfrew Court, (F.L.), ...	7	—	7	—	3	—	4	
17 Brown Street (F.L.), ...	6	—	—	6	—	—	—	
20 Carrick Street (F.L.), ...	21	—	—	21	—	—	—	
34 Carrick Street (F.L. and B.L.),	25	—	—	25	—	—	—	Local Authority still to give decision
21 and 21A Shamrock Street (F.L.),	5	—	—	5	—	—	—	Basement houses, 3 houses to be closed, 1 to be repaired and 1 for further consideration.
5 Rosehall Street (F.L.), ...	2	—	—	2	—	—	—	Basement houses.
46 Shamrock Street (F.L.), ...	1	—	—	1	—	—	—	Basement house.
8 Scotia Street (F.L.), ...	1	—	—	1	—	—	—	Basement house.
12 Scotia Street (F.L.), ...	5	—	—	5	—	—	—	Basement houses.
258 Bath Street (F.L.), ...	1	—	—	1	—	—	—	Basement house.
377 Bath Street (F.L.), ...	1	—	1	—	—	—	1	Basement house.
Blairdardie Cottages, ...	2	—	—	2	—	—	—	
26 Burnside Street (F.L.), ...	15	15	—	—	4	—	11	
96/98 Port Dundas Road (F.L.),	2	—	1	1	—	—	1	
110 Port Dundas Road (F.L.), ...	6	—	6	—	4	2	—	
67 St. Mungo Street (F.L.), ...	1	—	1	—	1	—	—	Basement house.
6 Roslin Place (F.L.),...	12	12	—	—	4	—	5	3 houses unoccupied at time of representation.
11 Portree Street (F.L.), ...	2	—	2	—	2	—	—	Basement houses.
21 Milton Street (F.L.), ...	12	12	—	—	9	—	3	
8 St. Peter's Street (F.L.), ...	2	—	2	—	2	—	—	Basement houses.
14 St. Peter's Street (F.L.), ...	2	—	1	1	1	—	—	Basement houses.
101 Grove Street (F.L.), ...	1	—	1	—	1	—	—	Basement house.
1819 Maryhill Road (F.L.), ...	1	—	1	—	1	—	—	Basement house.
7 Provanhill Street (F.L.), ...	32	—	1	31	1	—	—	
275 Springburn Road (B.L.), ...	11	—	—	11	—	—	—	
1 to 37 Foundry Place (F.L.),	18	—	—	18	—	—	—	
102 Foundry Lane (F.L.), ...	1	—	—	1	—	—	—	
3 Auhurn Place (F.L.), ...	9	—	9	—	9	—	—	
11 Auhurn Place (F.L.), ...	6	—	6	—	5	1	—	
12 Auhurn Place (F.L.), ...	9	—	9	—	9	—	—	
20 Auhurn Place (F.L.), ...	8	—	8	—	6	2	—	
28 Auhurn Place (F.L.), ...	8	—	8	—	8	—	—	
1576, 1578 and 1584 Shettleston Road, (West F.L.), ...	5	5	—	—	5	—	—	
1582, 1586 and 1584 Shettleston (East F.L.), ...	5	5	—	—	4	1	—	
80 Canntyne Road, (F.L.) ...	1	1	—	—	1	—	—	
261 Tohago Street, (North B.L.),	4	4	—	—	3	1	—	
261 Tobago Street, (South B.L.)	3	3	—	—	2	—	1	
64 Abercromby Street (B.L.), ...	4	4	—	—	4	—	—	
18 Glendale Street (B.L.), ...	4	4	—	—	4	—	—	
31 Glendale Street, (South B.L.),	4	—	1	3	1	—	—	
31 Glendale Street, (East B.L.),	1	—	—	1	—	—	—	
31 Glendale Street, (North B.L.),	2	—	—	2	—	—	—	
120/2 Reid Street, (South F.L.),	1	4	—	—	2	—	2	
130, 132, 134 Reid Street, (F.L.),	10	10	—	—	3	1	6	
1171, 1173 Gallowgate (F.L.), ...	3	—	3	—	—	—	3	
72 Heron Street, (South B.L.),	6	6	—	—	3	1	2	
72 Heron Street, (North B.L.),	6	6	—	—	5	—	1	

Carry forward, ...

		NUMBER OF HOUSES.			NUMBER OF FAMILIES.				REMARKS.
		Total.	Demolished.	Closed but not Demolished.	Still Occupied.	Transferred to Relieving Schemes.	Substituted for Families Transferred.	Removed Elsewhere.	
Brought forward, ...									
Properties represented in 1931—									
61 Dunbar Street (F.L.),	...	4	—	4	—	4	—	—	Ground-flat houses.
55 Dunbar Street (F.L.),	...	3	—	3	—	1	—	2	Ground-flat houses.
49 Dunbar Street (F.L.),	...	1	—	1	—	1	—	—	Ground-flat houses.
11/13 Causewayside Street (F.L.),	...	2	—	—	—	2	—	—	
100 Crownpoint Road (B.L.),	...	6	—	—	4	1	1	—	
94 Crownpoint Road (B.L.),	...	6	—	—	4	1	—	1	
514-53 Muslin Street (F.L.),	...	11	11	—	—	4	2	5	
5 Broad Place (F.L.),	...	6	—	1	5	1	—	—	
79, 81, 83 Tobago Street, (South F.L.),	...	12	—	—	12	—	—	—	
81, 89, 91 Tobago Street, (North F.L.),	...	11	—	—	11	—	—	—	
81 Tobago Street (B.L.),	...	4	—	—	4	—	—	—	
95, 97, 99 Tobago Street (F.L.),	...	10	—	—	10	—	—	—	
97 Tobago Street, (South B.L.),	...	4	—	—	4	—	—	—	
97 Tobago Street, (North B.L.),	...	4	—	—	4	—	—	—	
103, 105, 107 Tobago Street, (South F.L.),	...	7	—	—	7	—	—	—	
105 Tobago Street, (South B.L.),	...	4	—	—	4	—	—	—	
105 Tobago Street, (North B.L.),	...	4	—	—	4	—	—	—	
105, 109 Tobago Street, (North F.L.),	...	2	—	—	2	—	—	—	
16 Mauldslee Street (B.L.),	...	1	—	—	1	—	—	—	
9 Glendale Street (F.L.),	...	9	—	—	9	—	—	—	
460 Lawmoor Street (F.L.),	...	1	—	—	1	—	—	—	Ground-flat house.
470 Lawmoor Street (F.L.),	...	2	—	—	2	—	—	—	Ground-flat houses.
8 Lawmoor Street (F.L.),	...	2	—	2	—	—	—	2	Attic houses.
14 Lawmoor Street (F.L.),	...	2	—	2	—	1	—	1	Attic houses.
133 Adelphi Street (F.L.),	...	3	—	3	—	1	—	2	Basement houses.
168 Lawmoor Street (F.L.),	...	15	—	6	9	1	—	5	
39 Crown Street, (F.L.),	...	22	22	—	—	15	—	7	
147 Naburn Street (F.L.),	...	2	—	—	—	—	—	—	Rendered habitable.
142 Naburn Street (F.L.),	...	1	—	—	—	—	—	—	Rendered habitable.
396 Mathieson Street (F.L.),	...	1	—	—	—	—	—	—	Rendered habitable.
6 Birch Street (F.L.),	...	1	—	—	—	—	—	—	Rendered habitable.
24 Nicholson Street (F.L.),	...	14	—	2	12	—	—	2	Basement houses.
98 Kidston Street (F.L.),	...	1	—	—	—	—	—	1	Converted into business premises.
275 Caledonia Road (B.L.),	...	1	1	—	—	—	—	1	
26 Alexander Street (F.L.),	...	2	—	—	—	—	—	2	Converted into business premises.
155 Centre Street (B.L.),	...	14	—	11	3	7	1	4	Two families in one of the houses.
209 Weir Street (F.L.),	...	1	—	1	—	1	—	—	Basement house.
Totals,	...	559	131	130	290	163	18	81	

POSITION WITH REGARD TO REPRESENTATIONS MADE UNDER SECTION 16 DURING 1931.

DIVISION.	Number of Houses Represented.	NUMBER OF HOUSES.					NUMBER OF HOUSES.				FAMILIES REHOUSED IN—			
		Closing Orders.	Demolition Orders.	Not to be used for Human Habitation.	To be rendered fit for Human Habitation.	Closed.	Demolished.	Rendered Fit and Occupied.	Converted to Business Purposes.	Still Occupied.	Rehousing Scheme.	"Intermediate" Scheme.	Private Property	Unknown.
Central,
Northern,
Eastern,
South-Eastern,
South-Western
		559	19	418	82	14	130	131	5	3	290	171	1	47
														43

* 26 houses still under consideration at end of year.

† Includes two families from one house.

‡ 3 unoccupied at time of representation

SLUM CLEARANCE AND REHOUSING.

The following summary shows the position of the various schemes as at the end of 1931 :—

	Number of Houses.			Total Houses in Scheme.
	Demolished.	Closed.	Still Occupied.	
Parliamentary Road Scheme, ...	121	—	—	121
1923 Scheme,	1,858	—	—	1,858
1926 " 	1,052	—	—	1,052
1927 " 	1,019	—	—	1,019
1928 " 	1,065	41	—	1,106
1930 " 	459	415	414	1,288
	5,574	456	414	6,444

Further details for schemes which were not completed at the end of 1930 are given in the following notes :—

(a) *The Glasgow Improvement Scheme, 1927.*—This scheme was completed during the year.

<i>Houses closed or unoccupied at commencement of Scheme—</i>	1 apt.	2 apts.	3 apts.	4 apts.	Total
Number demolished prior to 31st Dec., 1930, ...	—	3	—	—	3
Number demolished during 1931,	2	—	—	—	2
	2	3	—	—	5

<i>Houses in occupation at commencement of Scheme—</i>	1 apt.	2 apts.	3 apts.	4 apts.	Total
Number closed and demolished prior to 31st Dec., 1930,	437	471	35	2	945
Number closed prior to 31st Dec., 1930, and demolished during 1931,	44	20	—	—	64
Number closed and demolished during 1931,	2	3	—	—	5
	483	494	35	2	1,104

Number of Families—

<i>Transferred to Rehousing Schemes—</i>					
Prior to 31st Dec., 1930, ... ..	...	...	...	...	679
During 1931, ... ..	...	...	...	...	5
<i>"Substituted" and Transferred to Rehousing Schemes—</i>					
Prior to 31st Dec., 1930, ... ..	...	...	...	...	169
During 1931, ... ..	...	...	...	...	—
<i>Removed voluntarily or on account of non-payment of rent, &c.—</i>					
Prior to 31st Dec., 1930, ... ..	...	...	...	...	238
During 1931, ... ..	...	...	...	...	—
Still to be provided for at 31st Dec., 1931, ... ..	...	...	...	...	—
					1,091

(b) *THE GLASGOW IMPROVEMENT SCHEME, 1928.*—At the end of the year all the families had been rehoused, and only 41 closed houses remained to be demolished to complete the scheme.

<i>Houses closed or unoccupied at commencement of Scheme—</i>	1 apt.	2 apts.	3 apts.	4 apts. and up.	Total
Number demolished prior to 31st Dec., 1930, ...	2	5	—	—	7
„ demolished during 1931,	—	—	—	—	—
„ still to be demolished at 31st Dec., 1931, ...	—	—	—	—	—
	2	5	—	—	7

Houses in occupation at commencement of Scheme—

Number closed and demolished prior to 31st Dec., 1930,	515	333	31	4	888
Number closed prior to 31st Dec., 1930, and demolished during 1931,	83	51	1	2	137
Number closed and demolished during 1931, ...	20	13	—	—	33
	618	402	32	6	1,058
Number closed prior to 31st Dec., 1930, and not demolished at 31st Dec., 1931,	17	11	—	—	28
Number closed during 1931 and not demolished at 31st Dec., 1931,	1	12	—	—	13
	18	23	—	—	41
Number still in occupation at 31st Dec., 1931, ...	—	—	—	—	—
Total Houses in Scheme,	638	430	32	6	1,106

Number of Families—

Transferred to Rehousing Schemes—					
Prior to 31st Dec., 1930, ... ..	...	...	...	...	786
During 1931, ... ..	...	...	...	...	30
“Substituted” and transferred to Rehousing Schemes—					
Prior to 31st Dec., 1930, ... ..	...	...	...	...	136
During 1931, ... ..	...	...	...	...	4
Removed voluntarily or on account of non-payment of rent, &c.—					
Prior to 31st Dec., 1930, ... ..	...	...	...	...	170
During 1931, ... ..	...	...	...	...	12
Still to be provided for at 31st Dec., 1931, ... ..	...	...	...	...	—
					1,138

(c) THE GLASGOW (CALTON) IMPROVEMENT SCHEME, 1930.—Good progress was made during the year. 874 houses had been closed by the end of the year, and only 414 were still occupied. Of the 874 houses closed, 459 were demolished.

<i>Houses closed or unoccupied at commencement of Scheme—</i>	1 apt.	2 apts.	3 apts.	4 apts.	Total
Number demolished during 1931,	1	—	—	—	1
	1	—	—	—	1

Houses in occupation at commencement of Scheme—

Number closed and demolished during 1931, ...	217	209	32	—	458
Number closed during 1931, and not demolished at 31st December, 1931,	182	222	11	—	415
Number still in occupation at 31st December, 1931, ...	206	187	18	3	414
	605	618	61	3	1,287
Total houses in Scheme,	606	618	61	3	1,288

Number of Families—

Transferred to Rehousing Schemes during 1931, ... ..	...	...	...	...	633
“Substituted” and transferred to Rehousing Schemes during 1931, ...	...	...	...	...	135
Removed voluntarily or on account of non-payment of rent, etc., during 1931, ... ..	...	...	...	...	141
Still to be provided for at 31st December, 1931, ... ..	...	...	...	...	431
					1,340

CONDITIONS IN SLUM CLEARANCE REHOUSING SCHEMES.

The houses in the Rehousing Schemes to which families from slum areas are transferred are kept under supervision by lady inspectors. Visitation is undertaken at regular intervals and the condition of each house at the time of the visit is noted and classed as clean or fair or dirty. Houses in the clean class are visited once every three months and in the other groups at least every month.

The movement among the tenants during the year is shown in the following statement:—

Number of tenants in occupation at 31st December, 1930, in schemes included in Annual Report for 1930,	4,527
Number of tenants in occupation at 31st December, 1930, in schemes which were filling up or had been occupied for a short time only prior to the end of that year,	800
Total number of tenants in occupation at 31st December, 1930, ...	5,327
Number of tenants obtaining entry during 1931 (transfers excluded),	524
Number of tenants evicted or left owing rent during 1931, ...	163
Number of tenants removed voluntarily during 1931 (transfers excluded),	132
	295
	229
Number of tenants in occupation at 31st December, 1931 (schemes filling up or occupied for a short time only excluded)	5,556

Of the 5,556 houses in occupation at the end of the year 3,952 were classed as clean, 1,473 as fair, and 131 as dirty; or expressed in percentages clean 71·1 per cent., fair 26·5 per cent., and dirty 2·4 per cent. The high standard of house occupancy which these figures indicate is very satisfactory, having regard to the conditions under which the families had been living previously.

It is interesting to compare the condition of the houses of tenants who have been in occupancy for over a year with tenants with less than a year's occupancy.

Of the 5,556 tenants in occupation at the end of the year, 5,042 had held tenancy during the full year, while 514 obtained entry during the year.

In the following table the condition of the houses occupied by the 5,042 families is given as at the beginning and end of the year.

		Condition at end of Year.			Totals.	Group Percentage.
		Clean.	Fair.	Dirty.		
Condition at beginning of Year.	Clean, ...	3,460	207	18	3,685	73·1
	Fair, ...	254	965	11	1,230	24·4
	Dirty, ...	3	47	77	127	2·5
Totals, ...		3,717	1,219	106	5,042	100·0
Group percentage, ...		73·7	24·2	2·1	100·0	—

A slight general improvement is to be noted in this group during the year. The number of "clean" houses increased from 3,685 to 3,717, while the number of "fair" houses decreased from 1,230 to 1,219; "dirty" houses were only 106 as against 127. A certain amount of backsliding is also indicated by the table. Two hundred and seven tenants previously reported as "clean" were transferred to the "fair" category; and 18 to the "dirty" category; while 11 who had been classified as "fair" were transferred to the "dirty" category. As a set off 254 "fair" and 3 "dirty" had progressed sufficiently to be classified as "clean" and 47 "dirty" to be classified as "fair." The remainder, 3,468 "clean", 965 "fair" and 77 "dirty" showed no change.

Similar information is given for the 514 tenants who obtained entry during the year, and in respect of whom supervision was of shorter duration than that of the preceding group.

		Condition at end of Year.			Totals.	Group Percentage.
		Clean.	Fair.	Dirty.		
Condition at date of entry.	{ Clean, ...	178	19	—	197	38.3
	{ Fair, ...	52	235	—	287	55.8
	{ Dirty, ...	5	—	25	30	5.9
Totals,		235	254	25	514	100.0
Group percentage,		45.7	49.4	4.9	100.0	—

The improvement in this group is more marked, although the final condition falls short of the standard obtained by tenants in residence for the full year—45.7 per cent., as against 73.7 per cent. "clean"; 49.4 per cent., as against 24.2 per cent. "fair"; and 4.9 per cent., as against 2.1 per cent. "dirty."

The following table gives the condition, prior to removal, of the houses occupied by tenants who were evicted or left owing rent, and by tenants removing voluntarily.

		Tenants evicted during 1931.		Tenants removing voluntarily during 1931.	
		Number.	Group Percentage.	Number.	Group Percentage
Condition at date of removal.	{ Clean, ...	60	36.8	95	72.0
	{ Fair, ...	91	55.8	34	25.8
	{ Dirty, ...	12	7.4	3	2.2
		163	100.0	132	100.0

The cleanliness of the evicted tenants remains, as in previous years, much below the average, although the condition of the houses of the tenants who removed voluntarily compares favourably with the standard of the previous groups.

CHILDREN IN REHOUSING SCHEMES.

The change in the housing conditions of the families removed from the slums has been well demonstrated during the past few years in the progress of the children of school age. It is well known that diseases such as rickets and the complications of measles, whooping-cough, and pneumonia, cause great havoc among child life in the densely populated wards of the city. Since rehousing has been carried out on a considerable scale, the incidence of these diseases among the children has distinctly lessened in the new environment.

The headmasters of four schools in the Eastern Division of the city have again reported to this Department on the progress of the children attending the schools from the rehousing schemes, and their observations continue to be very favourable. In the majority of cases there has been an improvement in the general appearance of the children and their nutrition. In intelligence tests their showing is practically equivalent to the average. Where little improvement has been observed, this can be accounted for by the general economic depression.

The headmasters of the schools have sent in the following concise reports on the scholars under their supervision. These reports, made from the daily observations on the progress of these children, give a very good idea of the success of slum clearance.

Bluevale Public School.—"The pupils from the rehousing schemes are becoming less easily distinguishable from those outwith the schemes. The teachers of the various classes report them as on the whole quite up to the average under the headings you suggested, and what little difference exists is mainly among the older pupils.

"The recent mental survey bore out the opinions of the teachers."

Newlands Public School.—"There are the names of 118 pupils on the roll of this school from the slum clearance rehousing schemes.

"Of these 33 are infants and 37 in the post-qualifying course. That the effect of slum clearance is beneficial to child life is clearly manifested when the report under the various headings on the individual pupils is examined.

"In the infant department under all the headings the 33 pupils reach the standard 'G.' with the exception of one boy marked 'F.' under intelligence.

"Among the juniors one is reported as backward, and the cleanliness, clothing and nutrition of another reaches only the standard of 'F.', while her attendance is far from being punctual.

"The seniors and post-qualifying pupils reach under all the headings on an average the standard of 'V.G.'"

St. Michael's Public School.—"Out of the 455 pupils concerned, the teachers single out comparatively few for adverse criticism

Cleanliness,	...	...	...	...	...	7
Nutrition,	...	...	...	...	...	4
Intelligence,	...	...	...	...	...	11
Discipline,	...	...	...	...	...	2
Clothing, ...	...	...	...	...	...	1
Punctuality,	...	...	...	...	...	9
Precocity and Sociability,	...	...	...	...	...	Nil.

"My general impression is that these children are greatly improved as the result of their improved surroundings, etc."

Springfield Public School.—"In the above school there are 149 boys and 135 girls who come from Corporation rehoused families, out of a roll of 1,620 children. They thus form 17-18 per cent. of the total roll.

"In cleanliness, nutrition and clothing these children compare very favourably with the others, the result, no doubt, of the efforts of the School Committee and the Public Assistance Committee.

"In the other particulars, intelligence, discipline, punctuality, precocity and sociability, there is little to mark the difference between the child of the rehousing scheme and the child of any other."

THE BED BUG.

The following further observations by Dr. William Gunn on the life history of the bed bug (*cimex lectularius*) have been made during the past year. The results are of considerable interest and value to those upon whom falls the duty of preventing infestation in the rehousing schemes throughout the city. Sanitary inspectors, and all who supervise new houses which are being occupied by tenants from slum clearance schemes, must know the life history of the bug intimately. Our knowledge of the insect has been increasing year by year, and in consequence prevention of infestation has become progressively successful.

The cause of the transference of bugs from old to new houses has been fully explained in previous Annual Reports, and the various methods of dealing with infestation of new houses have also been described. There is nothing new to add to this information. Thoroughness in the detailed examination of transferred articles of furniture immediately after tenants have taken up occupancy of the new houses is absolutely essential, and close supervision of those whose household belongings are infested must be maintained until the house and the furnishings are found to be cleared of the vermin.

Firewood.—During the past year, while the tenements in the Calton clearance area were being demolished, every precaution has been taken to prevent bug infested woodwork being carried away by persons in search of firewood. Workmen, armed with large blow-lamps, have flamed the wood during the stripping process and also the bedding of the wood fittings in the walls.

The Bug.—Some new information on recent observations have been made upon bugs of ages varying between the newly hatched and four years old.

For example, a four years old male which has only been fed on thirty occasions during its lifetime, an average of approximately once in six weeks, was mated with a female of its own stock, aged three years. Within four months fertile eggs were produced and successfully hatched. This observation on the longevity of bugs and the prolonged period of fertility is probably unique, and is the first record of this kind.

Bugs in captivity, fed on human blood at intervals of approximately six weeks, do not arrive at maturity until about the end of two years, and breeding then progresses annually from March until September. A particular brood, two years old and kept in this way, has not yet arrived at maturity, and they vary considerably in size. They have only been

fed at very irregular intervals varying between one and six months. They are the "inbred" descendants of "inbred" parents and it seems that their very slow rate of development has been determined to some extent by these adverse factors. The bugs bred in captivity are not so robust as the well fed specimens reared under the favourable conditions of the slum clearance areas.

The effect of lethal gases on the eggs of the bug is also being observed and this important matter will be reported upon in due course.

REHOUSING OF TUBERCULOUS FAMILIES.

In January, 1929, the Housing Committee of the Corporation resolved that 10 per cent of the Intermediate type of houses should be allocated to families where a tuberculous person had to share a sleeping-room with children or adolescents, subject to the general letting conditions of this type of house.

Recommendations are made from time to time by this department to the General Manager of the City Improvements Department, and houses are allocated as vacancies occur. During the year 1931 307 recommendations were made, and the following table shows the action taken in connection with them :—

Allotted houses,	34
Waiting for vacancies in present schemes, or in schemes in course of erection,	7
Waiting for cheaper type of Intermediate house,	4
<i>Negotiations with Improvements Department not completed—</i>	
Sent to look at house but did not call back,	7
Unsatisfactory reference from factor,	2
Unable to pay rental of Intermediate Scheme,	1
Not eligible,	4
	14
<i>No response by applicant to postcard from City Improvements Department—</i>	
Reason unknown,	17
Gone away and left no address,	1
	18
<i>Improvements Department still to report on recommendations,</i>	230
	<u>307</u>

With regard to recommendations made during 1929 and 1930, the Manager of the City Improvements Department reported the following results during 1931 :—

Recommendations during 1929 and 1930,	814
Allotted houses during 1929 and 1930,	148
No further action to be taken,	171
	319
Waiting for houses at 1st January, 1931,	495
Allotted houses during 1931,	88
<i>No response by applicant to postcard from City Improvements Department—</i>	
Reason unknown,	7
Gone away and left no address,	5
	12
	100
Still to be suited at 31st December, 1931,	395

RENT AND MORTGAGE INTEREST (RESTRICTIONS) ACTS, 1920 AND 1923.

Applications for Certificates by Tenants.—During the year 225 applications for certificates, in terms of Section 2 (2) of the principal Act, were received, compared with 54 for 1930. Of these, 6 were refused and 219 granted, 121 of the latter being in respect that the houses affected were not in all respects reasonably fit for human habitation, and 98 in respect that the houses were not in a reasonable state of repair.

The following summary shows the distribution of the applications throughout the several administrative divisions, and gives comparative figures for each year since the Act came into operation:—

GLASGOW, 1931—APPLICATIONS FOR CERTIFICATES UNDER SECTION (2) OF THE INCREASE OF RENT AND MORTGAGE INTEREST (RESTRICTIONS) ACT, 1930.

Division.	Refused.	Granted in respect that Houses were	
		(1) Not in all respects reasonably fit for human habitation.	(2) Not in a reasonable state of repair.
Central,	—	—	2
Northern,	1	10	21
Eastern,	5	84	67
South-Eastern,	—	1	—
South-Western,	—	26	8
City,	6	121	98
		<u>219</u>	
1920 (Oct.-Dec.)	147	263	459
1921,	97	154	180
1922,	10	2	8
1923,	75	180	160
1924,	21	83	69
1925,	16	15	23
1926,	9	28	12
1927,	9	30	22
1928,	8	89	20
1929,	2	9	2
1930,	1	44	9
1931,	6	121	98

Applications for Reports by House Factors and Owners.—In Section 5 (2) of the 1923 Act it is provided that where a certificate has been issued by the Sanitary Authority in accordance with the provisions of Section 2 (2) of the principal Act of 1920, and the house factor or owner afterwards executes the repairs required to put the house into a reasonable state of repair, he shall be entitled to receive a report to that effect on making application to the Sanitary Authority, and on payment of a fee of one shilling. During the year 7 applications were received, of which 6 were granted and 1 was refused.

The following summary shows the distribution of the applications throughout the several administrative divisions, and gives comparative figures for previous years :—

GLASGOW, 1931.—APPLICATIONS FOR REPORTS BY HOUSE FACTORS OR OWNERS UNDER SECTION 5 (2) RENT AND MORTGAGE INTEREST (RESTRICTIONS) ACT, 1923.

Division.						Applications.	
						Granted.	Refused.
Central,	...	...	...	...	...	2	—
Northern,	...	...	...	...	...	3	—
Eastern,	...	...	...	...	...	1	1
						<hr/> 6	<hr/> 1
						<hr/> 7 <hr/>	
1923, ...	...	...	...	...	...	6	—
1924, ...	...	...	...	...	...	29	1
1925, ...	...	...	...	...	...	5	—
1926, ...	...	...	...	...	...	2	—
1927, ...	...	...	...	...	...	2	—
1928, ...	...	...	...	...	...	—	2
1929, ...	...	...	...	...	...	2	—
1930, ...	...	...	...	...	...	—	—
1931, ...	...	...	...	...	...	6	1

SECTION IX.

BACTERIOLOGICAL LABORATORY.

Report by Dr. W. R. WISEMAN, City Bacteriologist.

The amount of work completed in the laboratory again reached a high figure relative to previous years. The variety of it may be apprehended if it is regarded as falling for the most part into the following categories —

(1) *Specimens from Cases of suspected Infectious Disease.*—The great majority of these are submitted for the definite purpose of ruling out as far as possible or confirming the presence of some disease that is named. Into this category comes the bulk of the routine work which comprises work dealing with the diagnosis of pulmonary tuberculosis, diphtheria, enterica fevers, typhus fever, dysentery (bacillary and amœbic), venereal diseases, ophthalmia neonatorum, puerperal and scarlet fever, cerebro-spinal fever, tuberculous and other forms of meningitis, pneumonia, anthrax, plague (in rats), malaria and undulant fever. In the wake of certain of these diseases, such as typhoid and paratyphoid fevers, diphtheria and cerebro-spinal fever, there usually follows the examination of numbers of contacts, that is, people who have been in association with such patients and may have become infected without showing signs.

(2) *Miscellaneous Investigations.*—Materials are frequently submitted from patients in connection with which no particular disease is or can be specified. They are submitted in order to see whether bacteriological analysis may throw light on the cause of the condition. Such cases often require prolonged investigation and, to carry out this satisfactorily, it cannot be too strongly emphasised that the clinician and the bacteriologist should maintain contact with one another and work in close unison. Work in this category includes such examinations as (a) scrutiny of the cellular content of the blood, (b) intestinal contents of cases which are not typhoid, paratyphoid or dysentery, but which may show some abnormality that is helpful in diagnosis, (c) urine for evidence of some uncommon diseases of microbic origin, (d) examination of foodstuffs either as to fitness for consumption or in connection with illness suspected to be related to their consumption, (e) tumours for malignancy, and other tissues for report upon changes in structure. It sometimes occurs that in some of these investigations the laboratory worker finds himself launched into quite an extended piece of work demanding considerable technical skill and a full knowledge of the subject, as, for instance, when it is desirable to fix the identity of a pathogenic organism which varies in some particular from the types familiar to the worker, or when an

organism usually taken to be non-pathogenic requires to be considered as a possible cause of illness in the absence of organisms known to be capable of producing the disease. Extended work of this kind cannot be conveniently tabulated in this report but some of its results will appear in the appropriate paragraphs.

(3) *Examination of Water and Milk Supplies.*—As a routine practice the water supply of the City is tested at regular intervals with regard to the maintenance of its standard of purity and its freedom from harmful contamination. The samples are taken from distributing pipes and also from the Gorbals, Mugdock and Craigmaddie reservoirs. The bacterial content of the water in the ponds of the public baths is also examined at regular intervals, an indication being thus obtained of the efficiency of the filtering plants. The examination of the milk supply of the City and the City's hospitals constitutes a considerable part of the routine work of the laboratory. The supplies are tested in regard to bacterial content as a measure of purity and in regard to tuberculous infection.

(4) *Biological Tests.*—These tests are an essential part of the procedure in examining milk for the presence of the tubercle bacillus, and are commonly used for the detection of this organism in pleural and cerebro-spinal fluids, sputum and urine. They are employed to distinguish the bovine from the human type of tubercle bacillus and to ascertain the type of infecting organism in cases of pneumonia. By means of them we ascertain the virulence or otherwise of organisms isolated from diphtheria patients, carriers and contacts, and make the diagnosis of certain infections such as anthrax, infective jaundice, &c.

Under these categories, so briefly and compendiously described the bulk of the work of the laboratory is seen to fall. The number of examinations carried out in 1931 was 38,673. This number is 4,700 over that for 1929, the last year with which it can properly be compared since, as pointed out in the 1930 Report, there was an abnormally large number of diphtheria and enterica contacts in 1930. The number for 1931 is the more striking if it is noted (1) that the routine examination of rats in connection with infective jaundice was brought to an end in 1930, and (2) that the microscopical examination of mixed milks for tuberculous infection was dropped in 1931 in accordance with the technique adopted for the national investigation into this subject. In spite of the decreases in 1931 due to these two changes—1,093 and 1,043 examinations compared with the years 1929 and 1930 respectively—the total for 1931 reached the figure of 38,673.

DIPHTHERIA.

The number of swabs examined for the presence of the diphtheria bacillus was 9,590. These were derived from three sources, (1) cases suspected of suffering from the disease, (2) contacts or persons who have

been in the vicinity of a known case, and (3) children who are examined prior to admission to the Corporation Country Homes. These last are termed pre-admission examinations.

(1) *Suspected Cases*.—8,231 swabs were reported upon in respect of diphtheria. In 1,202 of these, or 14.6 per cent., the results were positive. The positive percentage of these examinations from year to year is fairly constant, being 14.8 in 1929 and 15.2 in 1930.

(2) *Contacts*.—831 contacts were examined and yielded 20 positive results or 2.4 per cent. These came from 109 households (334 swabs), 4 schools (369), 2 hospitals (13), 1 Reception House (13), 1 Children's Home (10), 2 Day Nurseries (70), 1 tenement (21), 1 barracks (1).

(3) *Pre-admission Examinations*.—480 throat swabs were examined for the Health Department and 48 for practitioners. Only 1, i.e. 0.18 per cent, was reported positive. This organism was virulent (see below). The corresponding figure given in the Report for 1930 was 1 virulent organism found in 522 throat swabs. Thus for the years 1930 and 1931 we find virulent organisms in only 2 cases out of 1,050 throat swabs of these children, i.e. in 0.19 per cent.

Biological and Cultural Tests.—These were tests for virulence and for identity of organism which in each case resembled the diphtheria bacillus on culture. The organisms isolated from 113 swabs were so tested, of which 96, being *B. diphtheriæ*, required to be subjected to animal experiment. 77 of these 96 (i.e. 80 per cent) proved to be virulent *B. diphtheriæ*. The kinds and sources of these materials with the results were as follows —

	Number tested.	Virulent.	Non-virulent.
(a) Nasal swabs, ...	57	42	15
(b) Throat swabs, ...	38	27	11
(c) Ear swabs, ...	16	6	10
(d) Skin swab, ...	1	1	—
(e) Pre-admission swab, ...	1	1	—
	<hr/> 113	<hr/> 77	<hr/> 36

The identity and source of the 36 non-virulent strains is given in the following table —

	<i>B. diphtheriæ</i>	<i>B. hofmanni</i>	<i>B. xerosis</i>	Total.
Throat ...	11	—	—	11
Nose ...	5	9	1	15
Ear ...	3	2	5	10
	<hr/> 19	<hr/> 11	<hr/> 6	<hr/> 36

It is satisfactory to note from these tables that of the 38 swabs of the throat originally reported positive by the microscope every one was proved later to be the diphtheria bacillus by confirmatory cultural tests when the question arose of ascertaining the virulence. This emphasises the reliability of the originally reported results. The six virulent cultures from the ear were obtained from four patients, two of whom were scarlet fever cases and one a diphtheria convalescent.

ENTERICA GROUP.

Examination of Blood.—During the year agglutination tests for the diagnosis of typhoid and paratyphoid fever were done with 532 specimens of blood which were submitted from 339 patients and 193 contacts. Positive results for typhoid were given in 77 instances, for paratyphoid B in 27, while 32 were reported as doubtful. Among the positives were 8 typhoid contacts and 3 paratyphoid B contacts. The use of the capillary tube for submitting these specimens accounted for 5 of the doubtful results, and when specimens were repeated from 4 of these in what is now the usual way, it was found that 1 was positive for typhoid, 2 for paratyphoid B and one was negative. The use of the capillary tube continues to grow less in favour, there being only 7 per cent of the specimens submitted in this way compared with 13 per cent in 1930. The majority of the doubtful results can be accounted for by previous anti-enterica inoculation or unsuitable period in the course of the disease.

Sources of material and results in blood tests :—

	Positive Typhoid	Positive para. B.	Doubtful	Negative	Total
Practitioners, ...	23	23	20	173	239
Contacts, ...	8	3	6	176	193
Ruchill district outbreak,	10	—	5	27	42
Hawkhead Mental Hospital, ...	36	1	1	20	58
	<u>77</u>	<u>27</u>	<u>32</u>	<u>396</u>	<u>532</u>

It is seen that the preponderance of positive typhoids is due to the Hawkhead specimens and not to an extension of the disease among the general population.

Examination of Excretions.—The total number of examinations from all sources was 1,400 (fæces 741, urines 659), taken from cases, contacts and convalescents. 533 of these were repeat examinations, urines and fæces in almost equal numbers. The typhoid bacillus was isolated on 87 occasions from 40 cases. Of these 40 cases 15 proved to be harbouring the organism for a considerable time, 9 of them being in Hawkhead Hospital. Three of the remaining six cleared up during the year. The paratyphoid bacillus (*para B*) was found 47 times in 24 cases. Three of these were positive contacts and one had suffered from the disease in July 1930, being still positive in 1932.

Certain work upon enterica infections was a feature of the year under review, and one or two instances in particular fall to be mentioned —

(1) *The Ruchill District Outbreak.*—An outbreak of typhoid fever occurred in this district in August and was considered to have been spread by an ice cream vendor. This person gave a very suspicious blood reaction on being tested although he had been inoculated many years before, but repeated examinations failed to prove him to be in

an infective condition. Material from 91 persons (contacts and cases) was examined in the laboratory and the typhoid bacillus was found in 10 persons, while the blood of 10 others gave a positive typhoid reaction out of 42 whose blood was examined. The outbreak entailed the bacteriological analysis of 175 specimens of excreta (fæces 93, urines 82), there being the necessary repeat examinations of positive cases prior to dismissal from hospital.

(2) *Investigation at Hawkhead Mental Hospital.*—A survey of a number of patients at this hospital was carried out in order to ascertain the extent of infectivity, if any, in view of the outbreak of typhoid fever a few years ago. The survey was confined to 58 inmates, and the procedure was to examine the blood and three specimens of fæces and three of urine from each patient. 58 specimens of blood, 177 of fæces and 175 of urine were examined. The agglutination test was positive in 36 of the bloods, and in 9 of these patients the typhoid bacillus was found in the fæces or urine and in some cases in both fæces and urine. The paratyphoid bacillus was not met with in any of the specimens.

(3) A family of eight persons, living in a crowded tenement, were all found to have been infected with the typhoid bacillus with the exception of the baby. The children were 15 years of age and under. The diagnoses were made by definite blood reactions. The disease was apparently late in being suspected and there were two deaths. 48 contacts who were examined were cleared.

DYSENTERY AND FOOD POISONING.

Specimens of faecal excreta are not infrequently submitted to be examined for "dysentery and enteric group" infections. Where these have proved negative for the enteric group they have been placed under the above heading owing to the fact that an examination for dysentery organisms entails microscopical work in addition to examination by culture. The same specimen accordingly does not appear twice under different headings. In the course of the year material was submitted from 264 persons in this connection, and the examinations, including the usual duplicated specimens for clearance, numbered 378. The sources of the material and the findings are seen in the following table :—

	B. Flexner.	B. Sonne.	E. histolytica	Total.
Practitioners, ...	19	3	2	77
M.O.H. (suspected cases), ...	6	—	2	79
M.O.H. (contacts), ...	6	1	—	82
Corporation hospitals ...	15	5	—	140
	<u>46</u>	<u>9</u>	<u>4</u>	<u>378</u>

In the previous year the positive results for Flexner and Sonne infections were 22 and 29 respectively.

One outbreak of dysentery, caused by the Flexner bacillus, was dealt with in the laboratory during the year. It occurred in Renfrew-

shire, involving about 20 people, and was traced to ice cream sold by an itinerant vendor. 18 of the 20 persons affected were children, the signs of illness appearing at periods of less than one day up to four days from the time of partaking of the ice cream. The Flexner bacillus was found in the fæces of each of the four patients examined. After repeated examinations the ice cream vendor himself was found free from infection, but his wife and daughter were found infected with Flexner's bacillus on two successive examinations though both appeared to be in normal health and the specimens submitted from them were otherwise normal in character. Two samples of ice cream examined, after the outbreak took place, failed to yield the organism.

During the year samples of different kinds of foodstuffs were examined either as to their fitness for consumption or as being suspected of having caused illness. The majority of these were canned foods, such as salmon, sardines and corned beef. Samples of dates imported from an area in the East where cholera was rife and samples of imported ox tongues for actinomyeosis were also examined in relation to these infections, and were shown to be wholesome. A food poisoning organism of the *Salmonella* type was found to have caused an important outbreak of illness in a boarding school in June, about 80 persons being affected. The organism, which was not *paratyphosus B* nor *ærttrycke*, was cultivated from specimens of fæces and vomit submitted from a typical case. The suspected food, veal "galantine," was examined but no pathogenic organism was found in the portion submitted.

Several cases of illness occurred in November in different parts of the City and were attributed to the consumption of a certain cheap brand of "sardines." Some of the patients, the empty tins and tins previously unopened were examined, but no bacterial cause could be assigned. The oil remaining in one of the used tins certainly had a nauseating smell.

VENEREAL DISEASES.

During recent years there has been a progressive increase in the number of specimens sent for examination in connection with Venereal Diseases, and this year the total of 17,136 is the highest in the records of the laboratory. This number includes 11,726 subjected to the Wassermann Test, and 4,152 to the Kahn Flocculation Test.

Wassermann Test.—This test is used for specimens from suspected cases of syphilis, and during the year 11,726 were so examined. These

included 11,487 specimens of blood and 239 cerebro-spinal fluids; 4,652 specimens were from patients undergoing treatment. Of the 7,074 specimens submitted for diagnosis, 18.4 per cent. were positive, while of the 4,652 specimens from patients under treatment, 35.1 per cent. were positive. These percentages are similar to those of previous years. In addition to the foregoing a certain number of specimens reached the laboratory which could not be reported upon, owing to such causes as hæmolytic (32), insufficient serum (27) and anti-complementary action of the serum (2). Five patients attended the Laboratory to have blood withdrawn for the test.

The sources of specimens were as follows:—

Public Health Department,	5,321
Medical Practitioners of the City,	1,670
Outside Local Authorities,	1,145
Local Hospitals and Institutions,	3,590
	<hr/>
	11,726

Kahn Test.—The Kahn Test was performed on specimens taken as a routine from patients attending Ante-natal Clinics, the Clinic for the Blind, the Venereal Diseases Dispensaries for the treatment of gonorrhœa only, the Maternity Ward of the Southern General Hospital, and from other sources. All of these showed no clinical evidence of syphilis. During the year 4,152 specimens of blood came under this test, 2,867 from ante-natal patients with positive percentage of 2.4, 449 from persons attending the Clinic for the Blind with positive percentage of 9.0, 771 from gonorrhœa cases with 4.8 per cent. positive, and 65 from other sources. All cases coming under this category which give a positive Kahn reaction are in the meantime subjected to the complement fixation test (Wassermann) but the duplication of tests so performed is not shown in the figures of this report.

Microscopical Examination for Treponema Pallidum (V.D.S.).—During the year examinations were made of 14 specimens for the presence of this organism, four of which were positive. Considerable care is necessary on the part of the practitioner in preparing specimens for this examination.

Microscopical Examination for Gonococcus (V.D.G.).—Examinations of specimens numbering 1,244 were made for the gonococcus from cases other than Ophthalmia Neonatorum. The specimens for diagnosis gave a positive percentage of 51.7, while those from patients undergoing treatment gave a corresponding figure of 9.2.

A table showing in detail the sources of the above specimens is set out below:—

	Wassermann Test.	Kahn Test.	V.D.G. micros.	V.D.S. micros.	Total.
<i>I. Public Health Department—</i>					
Blind Clinic, Tuberculosis Dispensary,	100	450	20	—	570
V.D. Dispensaries (six),	3,986	771	276	—	5,033
Ante-natal Clinics (nine),	261	2,867	312	—	3,440
Hospitals, Fever (six),	354	12	—	—	366
„ General (two),	620	51	—	—	671
	5,321	4,151	608	—	10,080
<i>II. Medical Practitioners—</i>					
(a) City of Glasgow,	1,670	—	595	12	2,277
(b) Other Local Authorities,	1,145	—	30	2	1,177
	2,815	—	625	14	3,454
<i>III. Local Institutions—</i>					
Lock Hospital,	1,041	—	1	—	1,042
Ear, Nose and Throat Hospital,	176	—	—	—	176
Samaritan Hospital,	54	—	1	—	55
Cancer Hospital,	35	—	—	—	35
Sick Children's Hospital,	305	—	1	—	306
Sick Children's Dispensary,	478	—	—	—	478
Redlands and Elder Hospitals,	17	—	7	—	24
Bellahouston Dispensary (Victoria Infirmary),	91	—	1	—	92
Central Dispensary,	1	—	—	—	1
Glasgow Eye Infirmary,	1,392	1	—	—	1,393
	3,590	1	11	—	3,602
Total,	11,726	4,152	1,244	14	17,136

OPHTHALMIA NEONATORUM.

Specimens of exudate to the number of 888 from the eyes of suspected cases of ophthalmia neonatorum were examined for the Child Welfare Centres, &c. The positive results refer to the presence of the gonococcus.

Specimens from	Number.	Positive.
Medical Practitioners,	8	1
Medical Officer of Health,	877	71
Outside Authorities,	3	—

There were also 18 specimens reported as insufficient material. Since repeated examinations are commonly made to test the results of treatment, their number does not quite correspond to the actual number of patients.

It is the practice of the laboratory to name or describe as far as possible the organisms microscopically observed in each specimen, in order to assist the clinician in correlating different types of ophthalmia with those observations.

ANTHRAX.

Samples of goatskin thongs used as binding for imported orange boxes were examined for anthrax. Previous work in the laboratory has shown that they are liable to be vehicles of the anthrax bacillus. 62 samples were tested during the year, the findings being arrived at by biological and cultural tests combined. The samples were placed in groups of 2, 3 or 4, those from the same source being placed together for test. In this way 17 biological tests were applied to the thongs with five positive results. These positives came from four different sources. Other materials tested and giving negative results were samples of salted hide, ox hide and bone sinews.

In March a girl with a small lesion of the shoulder was examined in the laboratory. She was a worker in a factory where wool was handled. By microscopical investigation an organism was found in the lesion which was considered to be the anthrax bacillus and was straightway reported as such. The observation was confirmed later by culture and biological test. Samples of wool and dust from the factory were obtained and the anthrax bacillus was isolated from the sample of wool or sweepings associated with the dumper machine. This sample showed numerous slender woody splinters interspersed throughout. One of these splinters had penetrated the skin of the shoulder.

PLAGUE.

Since this disease is usually acquired from the bite of a rat flea which has previously fed on a plague-infected rat, examination of rats from ships and from the harbour forms a routine part of the laboratory work. During the year 344 rats were examined for evidence of plague. The results were negative. The species of rats examined were *Mus decumanus* (46), *Mus rattus* (175) and *Mus alexandrinus* (123). The proportion of males to females was as 162 to 182.

STREPTOCOCCAL INFECTIONS.—SCARLET FEVER, &c.

The work of the laboratory in relation to material that may be suspected of containing streptococci with hæmolytic properties has in very recent years increased in amount in correspondence with advancing knowledge of the part which these organisms play particularly in scarlet fever and in puerperal fever. In the case of scarlet fever the service of the laboratory comes in specially in regard to contacts, *e.g.*, in a case connected with milk supply. During the year 143 examinations were carried out, 134 being on swabs from scarlet fever contacts, and 9 being material from miscellaneous diseases, *e.g.* mastoiditis, and otitis media. 26 of these swabs were reported positive. In the case of suspected puerperal fever 32 examinations were made, there being 3 positive results from 26 swabs and 6 blood cultures.

Of the total of 175 examinations, 120 were for the Health Department.

MILK SUPPLY.

I.—IN RELATION TO BOVINE TUBERCULOSIS.

All reports as to whether samples of milk contain tubercle bacilli are based on the results of biological tests. The following samples were reported upon during the year :—

1. *Milk from Town Cows*.—During the year the Veterinary Surgeon submitted 143 samples. Eleven of these gave positive results, one of them being a duplicate sample. Percentage tuberculous=7.7.

2. *City Milk Supply*.—565 samples were obtained by the milk and dairy inspectors at consignee's premises. The following results were obtained :—

	Samples.	Tuberculous.	Doubtful.	% Tuberculous
Raw and Retailed Milks,	393	48	11	12.2
Pasteurised Milk,	172	3	7	1.7

3. *Hospital Milk Supply*.—249 samples from these supplies were examined during the year. They are Grade A (T.T.) milks. None was found tuberculous.

4. *Other Local Authorities*.—The following results were obtained from these samples :—

Samples.	Tuberculous.	Doubtful.	% Tuberculous.
202	23	4	11.4

The large numbers this year are due to the special investigation into tuberculous infection of milk which Glasgow has been carrying out along with certain other cities of Scotland. Doubtful results are so named because they did not rigidly conform to the conditions agreed upon by the investigators for the purposes of this investigation. In all probability the great majority of "doubtfuls" were really negatives. The positive percentages are calculated from the actual number of samples received for examination.

II.—IN RELATION TO BACTERIAL CONTENT.

City Milks.—Milks coming into the city are examined for the number of bacteria they contain per unit volume of one cubic centimetre. They are sampled mainly at consignee's premises. During the year 206 samples were estimated in this way in the laboratory, as against 203 in the previous year. The results obtained in 1931 and in the previous year may be placed together for comparison, as follows :—

	Number examined.	Samples below maximum of Certified Milk (30,000 per c.c.)	Samples below maximum of Grade A Milk (200,000 per c.c.)	Samples above 200,000 per c.c.
1930,	203	91 (45%)	63 (31%)	49 (24%)
1931,	206	74 (36%)	91 (44%)	41 (20%)

The actual averages of bacterial counts of samples of city milks in 1931 are presented in the following table as indicating degrees of purity of production.

Total number of samples examined = 206.

Maximum counts at 37° C. of designated milks (given as a basis for comparison).	Average counts at 37° C. and number of samples involved.
Below 30,000 per c.c. (Certified),	14,400 per c.c. for 74 samples = 36%
Below 200,000 per c.c. (Grade A),	78,500 per c.c. for 91 samples = 44%
	3,64,000 per c.c. for 23 samples = 11%
Above 200,000 per c.c.,	819,700 " 7 " = 3.5%
	3,267,800 " 11 " = 3.5%

Thus 80 per cent. of the supplies are of Grade A or Certified standard as to count, as compared with 76 per cent. in 1930. The samples with counts over Grade A standard are fewer than in the previous three years by 3 to 4 per cent. It is a striking fact, as was noted last year, that when a milk gives a count within Certified or Grade A standard, it is well within these limits, while milks which exceed the Grade A maximum count tend to go very much beyond it.

Hospital Milk.—The City Hospitals are supplied with milk designated as Grade A (T.T.). Estimations of the bacterial content are made fortnightly for ten hospitals and the following are the average counts per c.c. for 1931 :—

Hospital No. 1. 8,900	No. 2. 69,300	No. 3. 243,300	No. 4. 170,600	No. 5. 19,200
No. 6. 67,500	No. 7. 7,700	No. 8. 157,700	No. 9. 26,000	No. 10. 112,100

With one exception these figures are seen to fall within the 200,000 mark allowed for milk of the grade supplied.

Designated Milk.—In addition to the samples already dealt with, 309 samples of designated or graded milks were examined for the Health Department. Of these, 297 were found to give less than the maximum count for their grade, while 12 exceeded it. The details are subjoined.

	Samples.	Within Maximum count	Over Maximum count
Certified,	79	73	6
Grade A (Pasteurised),	26	26	—
Pasteurised,	17	17	—
Grade A	12	12	—
Grade A (T.T.), ...	175	169	6
	309	297 (96%)	12 (4%)
1930,	290	276 (95%)	14 (5%)

The relative maximum bacterial counts for these grades are appended :—Certified and Grade A (Pasteurised), each 30,000 per c.c.; Grade A and Grade A (T.T.) each 200,000 per c.c.; Pasteurised 100,000 per c.c.

LOCH KATRINE WATER SUPPLY.

Four samples from Craigmaddie, Mugdock, and Gorbals reservoirs and two from the tap are examined every month as to purity and bacterial content. The bacterial content remains fairly constant. The following are the quarterly averages for 1931 :—

	Average Count on Agar per c.c.	Average Count on Gelatin per c.c.
January–March,	9	92
April–June,	7	56
July–September,	7	59
October–December, ...	5	78

B. coli communis was absent in 10 c.c. of the tap water throughout the year with the exception of one occasion in February.

MICROSCOPICAL EXAMINATION OF TISSUES.

These are examinations by which a diagnosis is made by microscopical study of the structure of thin sections of tissue. They are submitted for report upon any changes that may be found. Most of them are of the nature of tumours, some are tubercular, but morbid conditions of diverse kinds are met with. During the year 57 specimens were reported upon, a figure almost double the largest number previously received in the laboratory, viz., 29 in the previous year. They were submitted by the city hospitals, mainly the Southern General, by general practitioners and by other Local Authorities.

BIOLOGICAL LABORATORY.

Some of the commoner diseases that require biological tests are noted in the introduction to this report. In 1931 these tests amounted to 2,514 as compared with 1,615 in the previous year, the large increase being due to an extensive investigation into tuberculous infection of milk.

SUMMARY OF EXAMINATIONS FOR THE YEAR 1931.

The examinations performed in the Bacteriological Laboratory during 1931 numbered 38,673 as compared with 39,876 in the previous year. The sources of materials submitted were as follows:—

	Medical Practitioners.	Health Department.	Other Local Authorities.
Tuberculosis (Human)—			
Microscopical Examination—			
Sputum,	2,516	2,080	104
Urine,	45	42	4
Cerebro-spinal fluid,	2	5	4
Pleural Effusion,	10	4	—
Ascitic Fluid,	1	1	2
Pus,	12	9	5
Fæces,	2	3	—
Swab 1. Sinovial fluid 1,	2	—	—
Biological Test,	75	76	15
Tuberculosis (Bovine)—			
Milk—			
Microscopical Examination,	—	143	72
Biological Test—			
Town Cows,	—	142	—
City Milk Supplies,	—	565	—
Samples from Hospital Milk supply,	—	249	—
Miscellaneous Sources,	—	—	202
Typhoid and Paratyphoid Fever—			
Blood (agglutination),	187	254	91
Urine, fæces (cultures),	82	1,257	61
Bile 1, Membrane from bowel 1,	—	1	1
Dysentery—			
Fæces,	51	301	26
Membrane from bowel,	1	—	—

	Medical Practitioners.	Health Department.	Other Local Authorities.
Diphtheria—			
Throat swabs from suspected cases, ...	7,302	624	305
" " " contacts,	—	831	—
Virulence Tests, ...	17	62	34
Pre-admission swabs, ...	48	480	—
Vincent's Angina—			
Throat swabs from suspected cases, ...	68	4	1
Cerebro-spinal Fever—			
Post-nasal swabs, ...	5	44	—
Cerebro-spinal fluid, ...	1	5	4
Meningitis, Pneumococcal and Influenzal,...	1	—	1
Scarlet Fever—			
Cultural Tests for hæmolytic streptococci,	40	120	15
Ophthalmia Neonatorum ...	8	877	3
Venereal Diseases—			
Wassermann Test, ...	5,866	4,715	1,145
Khan-Ante-natal, &c., ...	—	4,152	—
Gonococcal Infections other than			
Ophthalmia Neonatorum, ...	611	603	30
Treponema, pallidum ...	12	—	2
Anthrax—			
Goatskin Bindings of orange boxes, ...	—	42	—
Oxhide 2, salted hides 3, ...	—	5	—
Material from patient, ...	1	—	—
Wool refuse, etc., ...	—	14	—
Plague—			
Examination of rats from ships, docks			
and city, ...	—	344	—
Infective Jaundice—			
Material from patients, ...	1	1	—
Malaria—			
Blood, ...	3	2	1
Bacterial Diagnosis (various diseases)—			
Urine 82, fæces 48, swabs 36, pus 28,			
sputum 8, miscellaneous 54, ...	132	84	30
Food Poisoning Organisms—			
Examination of food-stuffs, ...	—	22	—
Materials from patients, ...	—	23	—
Water—			
Bacterial Content, ...	1	1	11
Milk (Bacterial Content)—			
Under Milk (Special Designations) Order,	—	309	—
City Milk Supply, ...	—	206	—
Hospital Milk Supply, ...	—	258	—
Miscellaneous, ...	5	3	18
Blood—			
Blood Counts, ...	4	19	—
Cytological Examination by smears, ...	15	2	—
By Culture, ...	5	5	5
Pernicious Anæmia, ...	4	—	—
Influenzal Pneumonia—			
Sputum 2, pleural fluid 1, ...	1	1	1
Histological Examination—			
Tumours and Tissues for Malignancy,			
&c., including P.M. specimens, ...	5	47	5

					Medical Practitioners.	Health Department.	Other Local Authorities.
Fungoid Diseases—							
Ringworm 2, favus 1, mycosis 1,	...				2	2	—
Chemical Examination—							
Urine, ... ..	...				6	28	—
Preparation of Vaccine,	...	...	...	...	—	1	—
Parasites—							
Scabies, ... ..	...	...	...	...	—	3	—
Typhus—							
Serum Test (Weil-Felix),	...	...			1	20	—
Undulant Fever—							
Blood, ... ..	...	...	...	...	3	2	3
Occult Blood—							
Fæces, ... ..	...	...	...	...	4	1	—
Actinomycosis—							
Swab 1, ox tongue 2,	...	...	...	...	—	2	1
Cholera—							
Raisins 2, dates 3,	...	...	...	...	—	5	—
Van den Bergh's Test—							
Blood, ... ..	...	...	...	...	1	—	—
Ducrey's Bacillus—							
Swab, ... ..	...	...	...	...	1	—	—
					17,160	19,101	2,202
					38,463		
Water Department—							
Tap Water, ... ..	...	...	...	...	24		
Reservoirs, ... ..	...	...	...	...	48		
					—	72	
Baths Department—							
Water from Swimming Ponds,	...	...	...	...		138	
						38,673	

W. R. WISEMAN.

SECTION X.

FOOD.

PASTEURISATION OF MILK.

The position of pasteurisation in a scheme of milk distribution over a large centre of population has been much under consideration in recent years. Modern methods of collection and distribution of milk from numerous farms and through large depots has a definite bearing on the spread of milk-borne infections, including the bovine tubercle bacillus, and it has become apparent that the pasteurisation of milk, by approved methods, is an essential safeguard for the protection, at any rate, of large urban communities. The following report by the Medical Officer of Health and the Veterinary Surgeon was accordingly presented to the Sub-Committee on Special Services. This report traverses the history of milk outbreaks of infectious disease in the city, traces the history of pasteurisation, discusses the position of efficient pasteurisation as a safeguard against bovine tubercular infection, and recommends that power be obtained to secure the pasteurisation of milk, other than that from tubercle-free herds. The Sub-Committee decided to obtain the views of the other three large cities in Scotland, Edinburgh, Dundee, and Aberdeen, before proceeding further.

REPORT BY THE MEDICAL OFFICER OF HEALTH AND THE VETERINARY SURGEON.

I.—INTRODUCTION AND RECOMMENDATIONS.

The Committee on Health have had under consideration from time to time various matters affecting the milk supply of the city. Among other measures of protection, pasteurisation plays a prominent part and is now widely adopted. As a further safeguard in the public health interests of the city, we are of the opinion that all milk, with the exception of the two highest grades on the market, viz., Certified Milk and Grade "A" (Tuberculin Tested) Milk should be submitted to pasteurisation by approved methods and under supervision as a condition precedent to its distribution to the public.

The provisions of the Milk and Dairies (Scotland) Act, 1914, which came into force in 1925, the bye-laws made by the Corporation under that Act, along with the Milk (Special Designations) (Scotland) Order, 1930, together form a comprehensive code for the improvement of the general milk supply and for the protection of the public. The operation of these measures in practice, and also the enlightened co-operation of

the majority of distributors and producers, as well as of the authorities in the producing areas, have had the effect of causing a decided and undoubted improvement in the quality and purity of much of the milk supplied to the city. Pasteurisation, mostly by modern methods, is now practised by distributors in respect of approximately 80 per cent. of the city's milk, and experience has shown that this procedure must be regarded as an essential safeguard against milk-borne infections.

Previous Consideration by Committee on Health.—On two occasions previously the Committee on Health have considered this question in connection with the grading of milk. (1) The Minute of the then Sub-Committee on Inspection of Meat and Fish and Milk Supply of 17th November, 1922 (Print No. 3, page 159) refers to the Milk and Dairies (Amendment) Act, 1922, and to the proposed Order of the Scottish Board of Health *re* grading of Milk. The Sub-Committee “agreed to recommend, after receiving reports from the Medical Officer of Health, the Veterinary Surgeon, the City Bacteriologist, and the Corporation Chemist, that the various grades—five in all—proposed by the Board be not approved, and that in lieu thereof, as recommended by the Medical Officer of Health, two grades of milk be meantime instituted, viz. (a) Pasteurised Milk produced under the conditions suggested by the Medical Officer of Health, and (b) milk produced from tuberculin tested cows.” (2) At a special meeting of the same Sub-Committee on 5th February, 1926, to consider the report of the Chief Veterinary Surgeon on the Handling and Distribution of Milk in Cities in Canada and the United States of America, it was agreed *inter alia* “that the grades of milk to be sold for human consumption should, in the meantime, be limited to three, viz., Certified Milk, Grade ‘A’ (Tuberculin Tested) milk, and Pasteurised Milk, and that the system of pasteurisation to be recommended by the Corporation be the Holder process.”

Recommendations.—We are of opinion that powers should be secured to enable a large centre of population like Glasgow to require, should the local authority so decide, (a) that all milk brought into the area for consumption or produced and consumed in the area, unless it comes within the category of Certified or Grade “A” (Tuberculin Tested) Milk, should be efficiently pasteurised before distribution; (b) that the process of pasteurisation should be by approved methods; (c) that pasteurising plants should be subject to the approval and supervision of the local authority; and (d) that these provisions should be enforceable after a reasonable period sufficient to allow the milk industry to adapt itself to the required standards.

With regard to the question of powers for this purpose, Section 8 (d) of the Milk and Dairies (Scotland) Act, 1914, lays upon the local authority the duty of making bye-laws “for prescribing precautions to be taken by dairymen against infection or contamination.” It is doubtful, however, whether this sub-section could be interpreted as empowering a local authority to include compulsory pasteurisation in

its code of bye-laws. If this is so, the Committee will no doubt consider the course which might be followed to obtain the necessary powers, possibly in collaboration with other large cities and towns in Scotland. There is a large and growing body of opinion in favour of a proposal of this kind. In view of its importance, it has been considered advisable to add to this report certain arguments from a public health standpoint in support of the recommendations made above.

II.—RÉSUMÉ OF PUBLIC HEALTH CONSIDERATIONS REGARDING PASTEURISATION.

Experience lends strong support to the view that milk supplied in bulk for consumption in large urban areas should be submitted to pasteurisation by approved methods, the most powerful argument being that the menace of milk-borne infections is thereby largely eliminated, and is restricted to such relatively infrequent incidents as may cause infection during, or subsequent to, pasteurisation. Glasgow is no exception to the general experience that the increasing practice of this procedure has caused a corresponding decline in the capacity of milk to convey specific infection to the consumer. The pasteurising of milk is now applied to about 80 per cent. of the city's milk, while about 70 per cent. of the supply is delivered in bottles. The history of milk outbreaks of disease, where the source of infection was at the farm, is entirely concerned with this diminishing portion of unpasteurised milk in the city's general supply.

As regards the history of pasteurisation, this process was first practised in Glasgow in the late nineties of last century, when the "flash" system was introduced by the large distributors, that is, heating to about 160° F., followed by immediate cooling. Prior to this, the scalding or "scadding" of milk was resorted to by immersing cans of milk in open boilers at temperatures of 160° F. to 180° F. and thereafter cooling in running water. Subsequent to 1900, the rapid growth of the city demanded further supplies from greater distances, and pasteurisation became more and more extensively employed to enhance the keeping qualities of the milk. The old flash system has been entirely superseded by modern methods, a change greatly assisted by the educative effect of the Special Designations Order of 1923, the transition to the positive holder type of pasteurising machine as recommended becoming practically universal. There is a general reluctance to exceed a temperature of 145° F. and the United States standard of 142° F. is sometimes adopted.

Pasteurisation grew up and was widely adopted for commercial reasons, as it augmented the keeping quality of milk. It preceded, but did not, as was sometimes feared, prevent the undoubtedly great improvements which have taken place in recent years in the standards of production of raw milk, a large proportion (at least 70 per cent.) of ordinary market milk being now comparable with that of Grade "A" quality.

There is no doubt that pasteurisation of milk has added to the security of cities against the danger of milk-borne infections. This

is a matter of great importance, and the following local illustrations may be quoted from experience in Glasgow. All the outbreaks of infectious disease, whose source was traceable to farms, were associated with supplies delivered direct and untreated from the farm to the consumer, or formed that part of the supply of a particular centre of distribution not subjected to pasteurisation. The following incidents are taken from the records of recent years.

In 1907, an outbreak of 126 cases of enteric fever occurred on a milk supply, a carrier being the source of infection. In 1909, a milk outbreak of 56 cases occurred, the source of which was not detected.

In 1912, a group of 19 cases of enteric fever, on a milk supply delivered direct from farm to dairy, was traced to a carrier at the farm. In 1927, an outbreak of 67 cases of paratyphoid B infection broke out on a similar direct supply. Five of the dairy farm hands gave positive blood reactions and two of them ultimately admitted having had mild and trivial recent illness. In 1913, there occurred 31 cases of scarlet fever due to a milker who had a mild sore throat and was not off work; she infected the dairy-keeper with scarlet fever. In 1916, a group of 11 cases of scarlet fever originated from a girl, aged 12 years, at the farm, preceded by two cases of "tonsillitis" without rash. In 1918, a series of 19 cases of scarlet fever occurred on the early morning direct supply from a farm, the probable source being a suspicious sore throat in a girl milker at the farm. In 1919, there occurred 32 cases of scarlet fever on a direct supply, the source of which was not definitely ascertained. In 1923, a series of 23 cases of scarlet fever, on milk direct from a dairy farm, was traced to a missed infection in a child of the dairyman, who infected the milk during the convalescent desquamating stage of the illness. In 1925, a group of 6 cases of scarlet fever occurred on a farm supply where a young child was found with double otorrhœa following an apparently undetected attack of scarlet fever. In the same year, a series of 15 cases on a direct milk cart and dairy supply was connected with (a) scarlet fever in a farm labourer's child, and (b) otorrhœa following an unrecognised attack in one of the farmer's children. As regards diphtheria, in 1913 a group of 13 cases originated from a child at a farm who had had no definite illness, but whose throat harboured the bacillus. In 1915, there occurred 115 mild cases in the neighbourhood of Glasgow, related to sores on the knuckles of three milkers and lesions on the udders and teats of eight of the cows. One of the milkers ultimately developed diphtheria, while "diphtheroid" bacilli were recovered from four of the cows and from the sores on the hands of the milkers. In 1922, a group of 10 cases on a direct supply was traced to a milker with enlarged tonsils harbouring the bacillus of diphtheria. There have also occurred two considerable and severe outbreaks of septic sore throat due to undetected mastitis in dairy herds. In one of these, pasteurisation of the supply pending full investigation cut short the outbreak.

In all these instances the milk was delivered in its natural state, and was contaminated through the medium of an infected person on a farm supplying a local dairy in a suburban area. No similar incident

has occurred on the main pasteurised supplies of the city, until recently when 200 cases of scarlet fever originated from a large distributing centre of pasteurised milk. It was found in this case that the pasteurising plant was defective, permitting the passage of infection from a farm into the milk supply. It has been pointed out that the purveying of milk is becoming concentrated in the hands of large distributors, supplies from numerous farms being mixed in wholesale fashion, so that the possibilities of spread from chance infections, such as those instanced above, would be greatly enhanced in the absence of an effective safeguard. Infections occur with sufficient frequency on the comparatively small proportion of raw milk to make one wonder what would happen if the protection of pasteurisation were removed.

As regards the possibility of eliminating these risks by more effective public health control, it must be confessed that this is a matter of considerable difficulty. The utmost precautions are defeated by such chance infections as those due to the very mildest cases of scarlet fever or diphtheria or para-typhoid fever, which are apt to be missed entirely. What is called "a chance risk of infection from some accidental carrier" is a real risk in populous areas. Many opportunities of infection occur among the personnel of farms in rural areas dotted with small townships and in proximity to a large city. Farms are no longer isolated communities; transport makes it easy for farm servants and their families to mix with the general population, and when infectious disease is prevalent in the district the dairying community does not escape its share. It is, in fact, far from being immune. Epidemiological considerations do not suggest that the safeguard of pasteurisation could be replaced by preventive control, however rigorously applied. In times of epidemic prevalence of infectious disease and in the present circumstances of milk distribution in large areas, the source of an outbreak might have to be sought for among numerous farms. The fact is that no one who is not in perfect health should milk cows or handle milk, so mild and elusive are the forms which infection may assume. It would be extremely difficult for this standard to be reached by the several hundred individual farms supplying a large city.

How much dependence can be placed on pasteurisation in the prevention of tuberculosis and to what extent bovine tubercle bacilli may survive this process, are difficult questions to which answers are being eagerly sought. Investigations into the thermal death point of tubercle bacilli in naturally infected milk by L. J. Meanwell are referred to in the review of this subject contained in the Research Monograph of the Ministry of Agriculture and Fisheries issued two years ago. In view of the importance of correlating the experimental results with the ordinary commercial practice of heating milk, the conclusions reached are worth quoting in full.

"L. J. Meanwell carried out a long series of experiments in which he studied the thermal death point, at different temperatures, of *Bacillus tuberculosis* in naturally infected milk, and has published

his results. In addition he has made an epitome of his own work and that of other people from which the following conclusions are drawn:—

“ First, that Meanwell himself carried out 39 experiments in which naturally infected and apparently normal tuberculous milk was heated to 145° F. for 30 minutes, and found living tubercle bacilli present on one occasion. In a second series of 19 experiments he heated naturally infected tuberculous milk which did not appear to be normal to the same temperature for the same time and again found living tubercle bacilli on one occasion. Secondly, that an epitome of recent work upon this subject demonstrated that of the four workers who employed naturally infected milk for their experiments, three found living tubercle bacilli after heating the milk to 145° F. for thirty minutes. Thirdly, that negative results were obtained by those workers who employed cultures of tubercle bacilli or pathological material which required chemical treatment before it could be inoculated. Fourthly, Meanwell’s work demonstrated that tubercle bacilli in naturally infected milk which had been heated to 140° F. for twenty minutes were usually destroyed, but that this combination of time and temperature left no margin of safety.

“ Meanwell finally concluded that commercial pasteurisation of milk at 145° F. for thirty minutes, when efficiently carried out, is usually effective in destroying the tubercle bacillus, but that milk subjected to this process cannot always be guaranteed to be entirely free from this organism, especially when one takes into account the fluctuations in temperature, possible mechanical defects in the plant, and the natural desire to hold the milk at as low a temperature as possible in order to conserve the cream line. These factors are all liable to be present when working under ordinary conditions.”

It therefore appears that, from an experimental point of view, pasteurisation is effective in destroying tubercle bacilli in milk in proportion to the efficiency with which it is conducted. The question arises whether the positive holder method of heating milk, which, if carefully applied, fulfils the time-temperature conditions laid down, and which is now universally employed, does in fact constitute a safeguard against infection. Definite positive evidence on this point would be difficult to obtain. On the epidemiological side, there are certain suggestive features about the remarkable decline in the incidence of non-pulmonary tuberculosis which lend support to the view that pasteurisation may have been a far from negligible factor.

During the last twenty years the death rate from non-pulmonary tuberculosis in Glasgow has fallen much more rapidly than has the corresponding rate for tuberculosis of the lung. Tracing the former rate since 1915, it is found that the decline in abdominal tuberculosis—that is, that form of the disease which is generally accepted as being caused by the bovine bacillus—has proceeded at an accelerated rate as compared with disease of other organs. Contrasting the five yearly periods 1915-19 and 1925-29 the total decline for all ages is from 59 to 30 per 100,000 of the population, or 49 per cent., while for the three constituent groups, tuberculous meningitis, abdominal tuber-

culosis, and other forms of tuberculosis combined, the fall is from 24 to 16 (46 per cent.), 17 to 7 (59 per cent.), and 19 to 10 (47 per cent.) respectively. Taking the age period under 1 year, the fall in abdominal disease is from 106 to 22 (79 per cent.) in tuberculous meningitis from 177 to 80 (55 per cent.), in other forms 41 to 21 (49 per cent.). For children between 1 and 5 years, the fall is respectively 65 per cent., 36 per cent., and 60 per cent. There has thus taken place a decided reduction in the incidence of fatal non-pulmonary tuberculosis, a fact which is also associated with an increasing mildness in its various clinical manifestations. It will be observed that the decline in the abdominal form, especially at the younger ages, has been outstandingly rapid. These figures should, however, be accepted with some reserve, owing to the fact that in children, especially infants under 1 year, confusion may readily arise in death certification as between abdominal and meningeal tuberculosis, both of which may be manifestations of a generalised tuberculous infection.

It is clear that some powerful protective influence has been at work, the nature of which can only be surmised. As regards abdominal tuberculosis, this affection has become more difficult to recognise and more amenable to treatment, while tuberculosis of the glands of the neck, also regarded as mostly a product of the bovine bacillus, has markedly declined in incidence and severity. This reduction in bovine infections cannot be definitely ascribed to any particular underlying cause, but, in the absence of a satisfactory alternative explanation, it appears to us that pasteurisation should be included among the likely factors and that public health administration should, for this reason, support the efficient pasteurisation of ordinary market milk, excluding, of course, the designated milks from duly attested and inspected herds.

There is, however, another and highly important aspect of the matter, namely, the relative value of raw and heated milk as an article of food, especially for children. We need not discuss in detail the views which have been advanced from time to time on this aspect of the effect of pasteurisation. The question whether heating milk to comparatively low temperatures assails the nutritive qualities of the raw article is summed up in a recent memorandum by the Ministry of Health on Bovine Tuberculosis in Man (Reports on Public Health and Medical Subjects, No. 63, 1931). This report, after reviewing the subject, concludes that "It will be seen that pasteurisation carried out in a suitable apparatus and under strict scientific control is capable of protecting the consumer from the danger of infection with the tubercle bacillus, and that milk so treated appears to retain its valuable food properties practically unimpaired."

That the value of milk is unaltered by pasteurisation has been shown in the recent large scale feeding experiment in Lanarkshire schools conducted by the Department of Health for Scotland. This report, issued in June, 1930, contains the conclusion that "in so far as the conditions of this investigation are concerned the effects of raw and pasteurised milk on growth in weight and height are, so far as we can

judge, equal." In a report to the Medical Research Council in 1926, Dr. Corry Mann gave the results of an investigation into the effect of adding milk to the diet of boys of school age in a large institution near London. He found that "an immediate improvement in physique followed an alteration in the quality of the diet which was adequate from a physiological standpoint. This improvement was most successful when fresh cows' milk, recently pasteurised, formed the additional item of food."

In conclusion, the systematic pasteurisation of ordinary market milk intended for consumption in large urban areas is, in our opinion, unavoidable under present conditions where milk is collected and mixed from widely scattered and varied sources, not under such scrupulous control as to eliminate the risk of chance infections—a danger which experience shows to be very real. It is difficult to resist the view, which is supported by experimental evidence, that efficient pasteurisation is of real protective value against bovine tuberculosis. The recommendation made in the first part of this report, that the Corporation should possess powers to secure the efficient pasteurisation of milk along the lines suggested is based on these considerations.

(Sgd.) A. S. M. MACGREGOR.

„ A. M. TROTTER.

1st June, 1931.

FOOD POISONING, INFECTIONS, ETC.

Numerous cases of illness associated with the consumption of unsound or contaminated food occurred during the year, in three of which the illness terminated fatally. A short note on each case is here given:—

January 2.—An excessive amount of di-chromate, probably potassium, in an ærated fruit drink, caused illness in a family in Bridgeton. Three individuals were affected with illness of short duration. Investigations into the method of manufacture, bottling and ingredients used, cast no light on the possible source of illness.

January 25.—Two children, of eight and nine years of age, were taken ill within half-an-hour of each other, with symptoms indicative of food poisoning. In both cases the illness had a rapid and fatal termination. There was no evidence of bacterial infection, on post-mortem examination.

June 14.—A child of 7 years, 8 months, who had consumed some shell-fish when on a picnic at Prestwick, took ill on his return home and died on the following evening. The cause of death was certified to be mussel poisoning.

June 23.—An outbreak of a gastro-intestinal nature, lasting in most instances from 24 to 48 hours, having an onset in the morning of Tuesday, 23rd June, involved 76 pupils in a boarding school, the ages

ranging from 19 to 22. One article of diet, viz., a veal galantine, would appear to have been the source of infection. There was a selective grouping of the cases, probably due to involved portions of meat being infected, or one of the calves being quite free. An organism of the salmonella group was isolated from an infected case. The illness was of the nature of an acute gastro-intestinal irritation, with fairly severe toxæmia. No fatal case occurred. The illnesses described, were remarkably similar, in many respects, to an outbreak recorded by Drs. Macgregor and Wiseman and published in the *Lancet* of August 2, 1924 (page 208).

July 20.—Between the 19th and 21st July, thirty-one individuals in the Calton district of the city were taken ill after partaking of corned beef. Five persons were detained in one of the infirmaries for treatment. The usual bacteriological and chemical examinations were negative. As no living organisms were found in the meat, or detected in the fæces of those affected, it is possible that a toxin was the actual irritant. The absence of anti-genetic reaction in the patients may have been due to the minuteness of the dose, or to the fact that it was got rid of rapidly. Further information on this subject may be obtained in the No. 92 Report of the Medical Research Council, issued by H.M. Stationery Office.

July 31.—The Police reported a minor case of sickness associated with the eating of sausage rolls, which, on examination, proved to be mouldy and unfit for consumption.

November 20.—A consignment of Norwegian sild, retailed by a city firm at their branch shops, appeared to be associated with acute illness in three families, in widely distant parts of the city. The remainder of the stock was immediately withdrawn, and samples submitted for bacteriological and chemical examination, with rather indefinite results, but epidemiological features indicated that the sild was the cause of the various illnesses. In no case did any member of the groups, who did not partake of the sild, show symptoms of illness, but each person who did partake of it, showed similar symptoms, varying in degree in proportion to the quantity of sild consumed. The combination of evidence points to the presence of some peccant material in the contents of the tins consumed by the affected groups. The history of these outbreaks is parallel to numerous cases reported in literature on the subject, and the conclusion invariably come to is that some thermostabile toxin is the casual agent.

SUMMARY OF OPERATIONS UNDER THE FOOD AND DRUGS (ADULTERATION) ACT; THE MILK AND DAIRIES ACTS; THE MERCHANDISE MARKS ACTS; AND ALLIED ACTS AND ORDERS FOR THE YEAR ENDING 31st DECEMBER, 1931.

The Food and Drugs (Adulteration) Act.—In terms of this Act a total of 5,121 samples were procured and examined, 3,789 being obtained informally and 1,332 in terms of the statute. Of these, 142

and 65, respectively, were subsequently certified as non-genuine and proceedings instituted in connection with 40 of the latter. In 38 of these, convictions were subsequently obtained, in one the diet was deserted simpliciter, and in the other instance the case was withdrawn and expenses paid. Under the sale of margarine provisions, the necessity for proceedings arose only in one instance. The total fines and expenses imposed in all proceedings under the above amounted to £140 1s. 6d.

Further details of operations are contained in the subjoined observations, abstracts, tables and appendices.

ABSTRACT OF TOTAL SAMPLES EXAMINED DURING 1931.

Article.	Informal.		Statutory.		Percentage adulterated.		Percentage of samples taken in each group to total.	
	Taken.	Non-Gen.	Taken.	Non-Gen.	Infor.	Stat.	Infor.	Stat.
Milk and cream, ...	2,301	79	837	27	3.43	3.22	60.7	62.8
Milk products (butter, cheese, &c.), ...	413	—	77	—	—	—	10.9	5.8
Cereals, &c., ...	45	—	43	—	—	—	1.2	3.2
Spirituous liquors, ...	209	30	40	1	14.35	2.50	5.5	3.0
Drugs, ...	234	16	58	4	6.83	6.89	6.2	4.4
Flavourings and condiments, ...	115	1	58	—	0.86	—	3.0	4.4
Miscellaneous foods, &c., ...	472	16	219	33	3.38	15.06	12.5	16.4
Totals, ...	3,789	142	1,332	65	3.74	4.87	100.0	100.0

ABSTRACT OF INFORMAL AND STATUTORY SAMPLES OF SWEET MILK EXAMINED DURING 1931.

Month.	Informal.				Statutory.			
	No. examined.	No. pre-sumed Non-Gen.	Average percentage composition.		No. examined.	No. pre-sumed Non-Gen.	Average percentage composition.	
			Fat. %	Non-Fat. %			Fat. %	Non-Fat. %
January, ...	178	7	3.63	8.78	72	3	3.47	8.78
February, ...	183	5	3.64	8.81	76	2	3.53	8.74
March, ...	178	8	3.61	8.78	73	6	3.51	8.72
April, ...	218	17	3.58	8.68	68	2	3.52	8.61
May, ...	253	11	3.58	8.66	69	1	3.58	8.59
June, ...	181	2	3.59	8.79	69	1	3.59	8.73
July, ...	126	2	3.62	8.65	60	1	3.49	8.68
August, ...	195	4	3.64	8.65	64	1	3.66	8.60
September, ...	170	7	3.76	8.71	65	1	3.66	8.66
October, ...	192	3	3.85	8.65	66	3	3.77	8.61
November, ...	163	4	3.85	8.67	71	3	3.67	8.61
December, ...	199	7	3.65	8.66	72	3	3.58	8.68

Food Standards.—A Committee on Food Standards was appointed by the Ministry of Health on 4th June, 1931, the terms of reference being:—"To enquire into the working of the law as to the composition and description of articles of food other than milk, and to report what alterations, if any, in the law or its administration appear to be desirable."

Following the example of the Dominions and other countries, the standardisation of important articles of food of a compound nature, and the elimination of the use of misleading descriptions has long been felt to be necessary. In the meantime, however, the work of this important Committee has been postponed.

Colouring Matter in Milk or Cream.—In terms of the Milk and Dairies (Amendment) Act, 1922, and the Milk and Dairies (Scotland) Act, 1925, all samples of milk and cream were in addition examined for the presence of colouring matter, all with negative results.

Artificial Cream Act, 1929.—So far as is known, there are no sales of artificial cream, as defined, as an entity, nor any premises on which it is produced and which, in terms of the Act, require to be registered with the Food and Drugs authority. One or two large firms of fancy bakers, however, manufacture the commodity, not for sale, but for use in other substances prepared by them, and in terms of the Act these are, therefore, exempt. An important ruling on the interpretation of the statute has recently been given by the King's Bench division in a case in which it was alleged that "cream filled" cakes—cream sandwiches—in which the fillings were not made with cream as defined in the above Act (and were in fact prepared from fat other than milk fat), were sold in contravention thereof. It was held that it was not an offence under the Artificial Cream Act to sell as "cream filled" a confection filled with a substance which was not cream or artificial cream, as defined. The Act applied only to sales of cream and artificial cream simpliciter, and had no application to a composite substance.

Preserves.—A Standards' Committee of the Jam Section of the Food Manufacturers' Federation, in collaboration with a Committee of the Society of Public Analysts, has now adopted and issued standards and fixed designations for first and second quality jams, to which practically all jam manufacturers have subscribed. Its objective is to raise the average quality of jams sold, and eliminate types of jam made to meet cut conditions of price and represented to be best quality jams.

In both grades a minimum fruit content for each variety of jam is fixed, and also the amount of soluble solids, *e.g.*, everything except the water, the seeds and fibre of the fruit—which, in no instance, is to be less than 68.5 per cent. A label is to be affixed to the side, and not to the top of the jar, declaring it to be "Full Fruit Standard" or "Lower Fruit Standard" as the case may be, with the addition of the words, "This jam is guaranteed to conform to the agreed full fruit (or lower fruit) standard of the Food Manufacturers' Federation." The presence of fruit juice in second-quality jams is to be declared by the addition of the words, "with other fruit juice" in letters equal in size to those of the named fruit or fruits. In mixed jams of either quality, where the proportion of fruit is not equal, the fruit forming the larger content is to appear first in the description on label. In the

case of marmalade, which must be made from citrus fruit only and contain $68\frac{1}{2}$ per cent. of soluble solids, the words "Full Fruit Standard" are to be omitted from the labelling. The absence of a statutory standard for jams has always created difficulty, and the adoption of the above scheme, while not binding in law, will be of some service in the protection of the consumer, and will eliminate a certain amount of undesirable and unscrupulous competition.

In the examination of samples, regard was given to those agreed upon standards, and two samples—one each of damson and black currant jams—were found to contain only 64.1 and 66.2 per cent. of soluble solids respectively. The attention of the makers was directed to the matter. It has been found that difficulties have arisen in determining the proportion of fruit or fruits present, which is accentuated when pulp in lieu of fresh fruit is used. It would appear that at present there is no method of estimating this with approximate accuracy.

Compounded Drugs.—Examination of informal samples of two compounded drugs which have a considerable sale and are colloquially known and sold as (1) Easton's Syrup, and (2) Parrish's Syrup or Chemical Food, revealed a gross deficiency in their basic constituents and appeared to indicate that syrup as a diluent was in both instances being freely used. As neither of these descriptive names is a recognised synonym in terms of, and contained in, the British Pharmacopœia, which alone has a legal status under the Food and Drugs Act, steps were taken to obtain a formal or statutory sample of each by means of a medical prescription as (1) Syr. Ferri Phosph. c̄ Quin. et Strych., and (2) Syr. Ferri Phosph. Co., B.P.C., respectively. The resultant analyses showed the former to be 40 per cent. deficient in anhydrous ferrous phosphate, and the latter 76 per cent. deficient in iron phosphate and 80 per cent. in calcium phosphate. Proceedings were subsequently taken, under Section 3, against the dispensing pharmacists, and convictions obtained, a penalty of £3 being imposed in each instance. In the case of the sample of Syr. Ferri Phosph. Co., B.P.C., a warranty defence was set up on behalf of the respondent, but was not sustained. An appeal on this issue by way of stated case for the opinion of the High Court of Justiciary was intimated, but subsequently withdrawn.

From a consideration of these cases, it would appear that the medical prescription was not dispensed, but that what was actually sold to the purchaser was something quite different, *i.e.*, Easton's Syrup or Parrish's Syrup made up in accordance with a formula containing a much smaller proportion of the essential ingredients than should have been dispensed. But the chief consideration is that medical practitioners prescribe these drugs under these common names and under the impression that the patient is obtaining the equivalent of what is laid down in the Pharmacopœia. It is understood that this very important matter is receiving the consideration of the Pharmacopœia Commission now in session, and that any loophole for fraud will be remedied in the new edition of the British Pharmacopœia in course of preparation.

Samples of almond oil have hitherto been found to comply with their designation, but during 1931 two samples were found to consist wholly of oil derived from the kernels of peach or apricot stones. Proceedings were accordingly taken against the chemists and druggists concerned. In a somewhat lengthy proof, it was contended for the defence that, having regard to its use, the definition of almond oil could not be limited to that of oil expressed from almonds, and that use and wont warranted the substitution alleged on economical grounds. The Stipendiary Magistrate, in convicting the respondents, held that "prejudice" could not be confined to the pecuniary aspect, and that when almond oil simpliciter was demanded, and something different from that commodity as defined in the British Pharmacopœia was supplied, the seller did in fact contravene the statute.

Preservatives, etc., in Food.—There has been no change in the legal provisions relating to the presence of preservatives in food or drink. Protests in relation to the operation of the Order continue. The National Farmers' Union of Scotland, although originally supporting the exclusion of boric acid from cream, have now petitioned for the amendment of the regulations so as to permit the use of 0.2 per cent. of boric acid during the months of May to September, inclusive. This proposal has not been entertained. The Union have also rescinded their former resolution favouring the prohibition of sulphite bleaching of barley, and intend to petition the Central Authority to permit this, as it is contended that large quantities, otherwise unsuitable, would be made available as pearl and pot barleys.

Butchers, in their use of sulphites in mince, &c., continue to be practically the only offenders under these regulations, proceedings being necessitated in respect of 20 samples. It is satisfactory to note that this is a marked diminution compared with 35 in 1930, 31 in 1929, and 29 in 1928. It would appear that this class of offence is now "on the run."

An extraordinary analysis was disclosed on the examination of an informal sample of ground ginger, sold in small containers, not less than 5,184 parts sulphur dioxide (SO_2) per million (estimated by weight, and confirmed by two check analyses) being reported present. An official sample was immediately obtained (six tins), but was found entirely void of sulphites, as was also a further informal sample subsequently procured. In an endeavour to elucidate the matter, the manufacturers were communicated with, but they stated that they were unable to offer any explanation, as all lots purchased were submitted to examination in their own laboratories. It appears that in certain climates, owing to the high humidities prevailing, it is not uncommon to treat ginger root with sulphur dioxide in order to obviate deterioration by damp; and if, in addition, the root is lime-bleached to improve its colour, the sulphites are more or less fixed, and are not removed in the subsequent washing. It is probable that such a parcel may have escaped detection on the part of the manufacturers, although, having regard to the amazing quantity present in the sample, it seems a somewhat inadequate explanation.

Two informal samples of cream originating in Northern Ireland were found to contain boron preservatives, but official samples subsequently obtained were negative. The Public Health (Preservatives, &c., in Food) (Northern Ireland) Regulations, 1927, as has been previously observed, have never functioned, having been repeatedly postponed, the most recent postponement being till 1st January, 1933.

Appended is table of samples in which preservatives were found, together with the nature and amounts.

ABSTRACT OF ARTICLES OF FOOD IN WHICH PRESERVATIVES, &c., WERE FOUND, AND THE NATURE AND AMOUNT, DURING YEAR ENDING 31ST DECEMBER, 1931.

Nature of article.	Number examined.	No. in which Preservatives, &c., were found.	Nature of Preservative, &c.	Parts per million.	
				Lowest.	Highest.
Apricots (dried), ...	2	1	Sulphur dioxide, ...	— 851	—
Cherries (preserved),	3	2	" "	9	12
Cider, ...	3	2	" "	25	27
Cream, ...	29	2	Boric acid, ...	0.29%	0.66%
Fruit Salad (dried),	1	1	Sulphur dioxide, ...	— 870	—
Ginger (ground),	28	1	" "	— 5,184	—
Ham (smoked), ...	35	1	Boric acid, ...	— Trace	—
Mince, ...	97	51	Sulphur dioxide, ...	19	1,120
Preserves, ...	38	5	" "	12.8	64
Sausages, ...	27	27	" "	83	480
Sausage Meat, ...	4	4	" "	318.5	1,661
Sugar, ...	3	1	" "	— 10	—
Sultanas, ...	20	3	" "	12	128
Tripe, ...	7	2	" "	14	38
Wines (non-alcoholic),	12	11	{ Sulphur dioxide (4),	12	108
			{ Benzoic acid, (7),	230	500
	<u>309</u>	<u>114</u>			

Milk (Special Designations) Order (Scotland), 1930.—The details of licences in force at the end of 1931, and the approximate daily gallonage distributed, with comparative figures for the two previous years, are as under:—

	1931	1930	1929
Certified—			
Producers, ...	—	1	1
Dealers, ...	56	50	46
Total average daily sales (gallons),	158	126	119
Grade "A" (Tuberculin Tested)—			
Producers, ...	—	—	—
Bottling establishments, ...	3	4	4
Dealers, ...	313	280	263
Total average daily sales (gallons),	1,067	936	922
Grade "A"—			
Producers, ...	—	—	—
Bottling establishments, ...	1	1	1
Dealers, ...	57	51	45
Total average daily sales (gallons),	*386	†408	‡418
Pasteurised—			
Pasteurising establishments, ...	2	2	2
Dealers, ...	23	17	15
Total average daily sales (gallons),	1,177	1,100	650

* 375 gallons pasteurised. † 400 gallons pasteurised. ‡ 400 gallons pasteurised.

Note.—The gallonage is exclusive of supplies to institutions and of pasteurised milk not described or sold as such.

During the year a total of 309 samples of designated milks as sold within the city were procured, and examined as to their conformity with the above Order. A tabular statement of the results is given hereunder:—

RESULTS OF EXAMINATIONS OF DESIGNATED MILKS.

Designation and Requirements.	Number examined.	Number conform to count and coliform requirements.	Number exceeding count only.	Number exceeding count and having coliforms present.	Number conform to count but with coliforms present.	Agar count per c.c.			Presence of coliforms.		Fat minimum (3.5 %).		
						Lowest.	Highest.	Average of Total samples.	-	+	Number at or above.	Number below.	Average Fat content.
CERTIFIED—													
Bacteria not to exceed 30,000; Coliform absent in $\frac{1}{10}$ c.c.; Fat not less than 3.5%. ...	79	67	4	2	6	300	72,750	8,192	71	8	76	3	4.07
GRADE "A" (Tuberculin Tested)—													
Bacteria not to exceed 200,000; Coliform absent in $\frac{1}{100}$ c.c.; Fat not less than 3.5%. ...	175	158	1	5	11	300	2,852,000	55,159	159	16	162	12 (One not examined)	3.89
GRADE "A"—													
Requirements are as for Grade "A" (Tuberculin Tested), ...	12	12	—	—	—	2,550	95,000	22,183	12	—	11	1	3.96
GRADE "A" (Pasteurised)—													
Requirements are as for "Certified,"	26	24	—	—	2	300	9,750	1,379	24	2	24	2	3.66
ASTEURISED—													
Bacteria not to exceed 100,000; 0 coliform test prescribed.	17	17	—	—	4	500	23,400	5,744	13	4	*17	—	3.67

* Fat minimum, 3.0%.

As will be observed from the foregoing table, 90 per cent. were fully conform to count and coliform requirements, and 94.2 per cent. in relation to fat contents, compared with 85.2 per cent. and 94.5 per cent., respectively, in 1930. In the case of any sample falling short of the standard, early repeat samples were taken, invariably with satisfactory results, and occasion for further action under the Order did not arise during the year.

The only licensed producer of Certified milk—a farm in the western area of the city—discontinued production in June, and one Grade "A" (Tuberculin Tested) bottling establishment also ceased, being absorbed by another company. The production of the higher grades of milk continues to be much in excess of requirements, and a new industry has been established within the city for the utilisation of the surplus in the manufacture of a high grade crustless cheese. The general

question of revision of the present unsatisfactory grading system has been dealt with in previous reports. There does not appear to be unanimity as to alternative designations which will in any case require further legislation. The Minister of Health has intimated that this is not contemplated at present.

Designated Milk Supplies to Infectious Disease Hospitals, Sanatoria, &c.—All such institutions under the direct control of the Public Health Department are supplied with Grade "A" (Tuberculin Tested) milk, the total average daily quantity being, approximately, 1,600 gallons.

Samples of supplies as received by such institutions are obtained at irregular intervals, and submitted to bacteriological and chemical examinations. A tabular statement of the results thereof is appended.

ABSTRACT OF RESULTS OF EXAMINATIONS OF GRADE "A" (TUBERCULIN TESTED) MILK, as supplied to Infectious Disease Hospitals, etc., during 1931.

Hospital or Institution.	Examined as to Bacterial Count and presence of Coliforms.						Coliform Bacilli.		Examined as to Fat. Content = 3.5%.			
	Number examined.	Number con- form to count	Number exceeding count.	Lowest.	Highest.	Average	-	+	Number examined.	Number at or above.	Number below.	Average.
Belvidere, ...	40	40	—	1,850	128,200	24,580	39	1	95	81	14	3.72
* Eastern District,	7	6	1	2,350	1,008,000	157,693	6	1	15	15	—	4.53
Knightswood,	23	21	2	2,050	2,776,000	239,391	19	4	40	36	4	3.95
Mearns Kirk, ...	18	18	—	850	19,800	6,331	17	1	31	31	—	4.32
Robroyston,	42	41	1	600	2,042,000	62,710	41	1	96	94	2	3.98
Ruchill, ...	67	66	1	300	446,000	21,801	64	3	167	147	20	3.87
Shieldhall, ...	19	17	2	2,050	3,696,000	243,387	14	5	35	34	1	3.84
* Stobhill, ...	14	14	—	600	18,150	7,711	13	1	83	81	2	3.88
* Stonevetts, ...	14	12	2	2,900	680,700	112,146	10	4	15	15	—	4.51
* Western District,	7	7	—	6,400	56,400	26,036	2	5	14	14	—	4.31

*As from 1st June, 1931.

Note.—A total of 209 samples of the above supplies were biologically examined as to the presence of tubercle bacilli, but none was found positive.

Tubercle, &c., in Ordinary Market Milk.—For the period 1st January to 7th April, 1931, a total of 60 samples of raw milk, as consigned by farmers to city dairymen, were procured on arrival, and submitted to biological examination for evidence of tubercle. Of these, two were found tuberculous, or 3.33 per cent., compared with 3.45 per cent. over the whole year in 1930, 2.91 per cent in 1929, and 3.98 per cent. in 1928.

The samples examined after 9th April formed part of a special investigation into tubercle bacilli in milk by the four large cities of Scotland conjointly, under the ægis of the Department of Health aided by a grant from the Empire Marketing Board and with the collaboration of the Hannah Dairy Research Institute. The arrangements as regards the scope of the inquiry in Glasgow, the standards of technique,

&c., were made by Dr. W. R. Wiseman, the City Bacteriologist, who has carried out the examinations. When the investigations are completed they will be reported upon as a whole. As regards the results for 1931 it is here sufficient to say that the technique employed included the use of two guinea pigs examined at four and eight weeks respectively after inoculation and that the centrifuged deposit from 50 cc. of milk was inoculated in each case. This new method of inoculation has revealed a much higher proportion of positive results in samples of ordinary milk than was formerly obtained.

The following tabular statement shows the results of examination of samples completed at 31st December, 1931:—

Group.	Number of samples submitted.	Total number reported "tuberculous."	Number of these "tuberculous" in both guinea pigs.	Number reported as "tuberculous" in first guinea pig only.	Number reported as "tuberculous" in second guinea pig only.
A Raw, ...	171	31 (18.13%)	23	1	7
B Pasteurised,	172	3 (1.75%)	1	—	2
C Retailed, ...	151	14 (9.27%)	5	3	6
Totals,	494	48	29	4	15

This table shows that of 171 samples of raw milk taken while the milk was in transit and before pasteurisation, 31 or 18.1 per cent. gave positive results for tubercle bacilli. Milk as retailed gave 9 per cent. positive, while pasteurised milk was positive in 3 out of 172 samples. These three positive samples were in respect of milk heated by "flash" methods of pasteurisation. The significance of these results is apparent.

This special investigation was continued during the early months of 1932, and the combined results of the samples taken in the four cities will be issued by the Department of Health for Scotland.

Bacterial Counts of Market Milk.—A total of 206 samples of non-graded milk as consigned by farmers to city dairymen was obtained on arrival at consignees' premises, and submitted to examination. The following table shows the results:—

Number examined.	Average number of Bacteria per c.c.					Coliforms in 1/100 c.c. (2 days).	
	Under 100,000.	100,000 to 200,000.	200,000 to 500,000.	500,000 to 1,000,000.	Over 1,000,000.	—	+
206	135	29	24	7	11	139	67

As is shown by above table, 79.6 per cent. were equivalent in bacterial count to milk of Grade "A" quality, as against 75 per cent. in 1930. Of the 135 samples in which less than 100,000 bacteria per c.c. were present (equal to 65.5 per cent. compared with 64 per cent. in the previous year), 73 of these, or 54 per cent., were equivalent to "Certified" quality, as against 70 per cent. in 1930. Coliform bacilli absent in 1/100th c.c. may be deemed a fairly exacting criterion

of freedom from possible manurial contamination, and in this respect 67.5 per cent. were satisfactory, compared with 64 per cent. in the previous year. Cordial thanks are due the officials of producing areas—who are duly advised of results of examinations—for their continued co-operation and assistance.

Condensed and Dried Milks.—A total of 36 samples of condensed milks, as defined, and all of different brands, was procured and examined; 17 were of machine-skimmed (sweetened), 7 of full-cream (sweetened), and 12 of full-cream evaporated (unsweetened). All were found fully conform in composition and labelling with the regulations, with one exception. The latter was a sample of machine-skimmed slightly low in milk solids and declared equivalence. Ten samples of dried milks of different brands were also obtained and analysed. Six were of full-cream, one of half-cream, two of machine-skimmed, and one of full-cream and virol. One sample was found to contain less than 70 per cent. of dried milk, and was thus outwith the regulations. The remainder were all conform to requirements.

Merchandise Marks and Orders.—The only new marking Order of 1931 is one dealing with imported frozen or chilled salmon and sea trout (S. R. and O., 1931, No. 554) and operating as from 29th December, 1931. The draft of an Order dealing with imported butter has been laid before Parliament, but this is not expected to function till May, 1932. The marking of imported meat, poultry and potatoes is also under consideration. The labelling of imported produce, so far as Orders in this respect have been made, in particular in the case of pre-packed foods, may be said to be fairly fully complied with. It is in the case of foodstuffs sold loose that witting and unwitting neglect on the part of certain traders of proper labelling arises—more particularly in regard to apples, tomatoes, &c.—to the prejudice of the law-abiding retailer. In the case of apples, for instance, traders are at times unmindful that “Oregon Newtowns” on a display card, while conveying certain information to discriminating purchasers, is not a definite indication in terms of the statute, of the country in which the goods originated. In the further case of tomatoes from the Channel Islands, it is not uncommon to find them unlabelled, and in some instances labelled “home” instead of “Empire,” “Jersey,” or “Channel Islands,” as is required in the absence of any Order in Council directing that such produce should be treated as the produce of the United Kingdom.

Inspection of eggs in shell, imported from Australia, disclosed that not infrequently these were very indistinctly marked, and in letters only 1.5 millimetres in height, whereas the Order requires that they be “conspicuously and durably marked” in letters not less than two millimetres in height. As the port of importation was London, the attention of the Secretary to the Board of Trade was directed to the matter. Further shipments, received with the opening of the season in September were found satisfactory. There were twelve prosecutions in all during the year—two in respect of apples, nine of tomatoes, and one of false description. Fines amounting to £14 were imposed.

Registration of Butter Factories, &c.—Five applications for registration under Section 8 of the Food and Drugs Act were received during 1931—three as wholesale dealers in margarine, and one each that premises be used as a “butter factory” and a manufactory of margarine. Considerable alterations were requisitioned in the two latter to render the premises suitable for the purposes of the respective businesses, and these were duly carried out. Certificates for all applications were subsequently granted. Intermittent inspection and sampling in “butter factories” did not disclose any irregularities, and all samples obtained therein were found genuine. The nature of the premises to which the section applies, and the number on the register at the end of 1931, were as under:—

Manufactories of margarine,	1
Wholesale dealers in margarine,	254
Manufactories of milk-blended butter,	—
Butter factories,	18

Fertilisers and Feeding Stuffs Act, 1926.—As hitherto, samples, otherwise than in the prescribed manner, were obtained of all feeding stuffs, compounds, and concentrates, in common use, and submitted to the Agricultural Analyst. A total of 45 samples were thus procured. Having regard to the allowances made for the limits of variation under the statute, none of the samples was found to differ materially from the prescribed parts of invoice or the requirements contained in the schedules to the Act.

Food Inspections, &c.—A total of 14,292 inspections in relation to foodstuffs was made in markets, shops, and stores during the year, and arising therefrom a total of nearly 76 tons of various foodstuffs were deemed by the inspectors, on various grounds, to be unfit for human food and accordingly destroyed. Occasion arose to deal with several exceptionally large lots. Dutch potatoes imported via the Port of Leith were found to present a patchy and roughened skin, and on section showed a brown discoloration, varying in extent and identified as being affected with “common potato blight” (*phytophthora infestans*). Several hundreds of bags fell to be condemned, and were destroyed, having no marketability even as pig feeding. Several tons of carrots from Worcestershire, which had become frosted in the pits, were likewise dealt with on arrival. In addition to the waste of foodstuffs which such items represent, there falls to be added costs of transit, demurrage, and other charges, all of which are inexcusable and wholly preventable had ordinary oversight and care been exercised at the point of origin.

The oversight of foodstuffs as to their due protection from contamination in course of preparation, or exposure for sale, was duly maintained, and, in the absence of adequate legal provisions in this respect, representations were invariably complied with, and a marked desire on the part of traders and manufacturers to co-operate continues to be evinced.

Milk and Dairies (Scotland) Order, 1925.—Article 12, relating to the use by dairymen of bottles other than their own, continues to be the major offence under the order, and in the absence of the milk-bottle exchange—through which, during the past year, no less than one and three-quarter million bottles were restored to owners—the conditions arising would be chaotic and well-nigh impossible. The further complete disappearance and loss of bottles (apart from the percentage of inevitable breakages) is an additional cause of concern to the trade, no less a sum than £400 per month being expended for replacement by one firm on this score alone. In all, there were 19 prosecutions under the Order during 1931, 16 being in respect of bottles and one of churns, one of decanting milk elsewhere than in dairy premises, and one of washing bed clothing within dairy premises. A conviction in each case was obtained, and £66 10s. in fines imposed.

Dairies.—In terms of the Milk and Dairies (Scotland) Act, 1914, the total on the register at the end of 1931 was 1,733, compared with 1,690 in the previous year—an increase of 43. Of these, 385 were in respect of limited registration, in terms of which conditions of trading are restricted to the reception and sale of bottled milk only, as against 345, an increase of 40. A total of 23,142 inspections of dairy premises was made, and 10 contraventions of the bye-laws noted, as also the necessity for repairs or improvements in a number of instances. Notices in relation to the latter were duly complied with. In three breaches of the bye-laws proceedings were warranted, two being in respect of bottling milk elsewhere than in dairy premises, and one of permitting persons to sit on milk churns, and penalties of £6 10s. in all imposed.

Occasion arose to question the cleanliness of milk bottles in use by a dairyman, and from observation it was decided that the cleansing was of a perfunctory nature and not in conformity with the byelaws. Sample bottles about to be filled were taken for bacteriological examination. The subsequent report showed the marked presence of *B. Coli*, associated with such extremely high bacterial counts as to be difficult of estimation. The dealer agreed forthwith to instal suitable and adequate soakage and cleansing tanks and steam sterilising plant, and this was given effect to with satisfactory results. The prohibition under the new bye-law of the sale of “Dip Milk” elsewhere than within a dairy is now fully operative, the period of grace having expired on 22nd June, 1931, and this method of distribution (an importation from England) has now ceased.

Byres.—The number of byres for milch cows within the city boundaries is as in 1930, viz., 53, and the registered accommodation therein, in terms of the bye-laws (600 cubic feet and 40 square feet per cow), provides for 1,194 cows. The average number kept totalled 996, compared with 1,025 in 1930. 490 inspections of these premises were made, and minor breaches of bye-laws, or requisite repairs noted, received due attention.

Ice Cream Shops.—Premises for the manufacture or sale of ice cream, and registered in terms of the Glasgow Corporation Order, 1919, totalled 583 at the end of the year, compared with 605 in 1930—a decrease of 22. These businesses, continue to be satisfactorily conducted. A total of 8,954 inspections therein were made, but these did not disclose any irregularities necessitating action.

ALEX. B. FINDLAY,
Senior Food Inspector.

31st March, 1932.

THE FOOD AND DRUGS (ADULTERATION) ACT, 1928.

TABLE SHOWING NATURE AND NUMBER OF TOTAL SAMPLES
PROCURED AND EXAMINED DURING 1931.

Nature of Sample.	Informal.		Statutory.		Nature of Sample.	Informal.		Statutory.	
	Number taken.	Number non-genuine.	Number taken.	Number non-genuine.		Number taken.	Number non-genuine.	Number taken.	Number non-genuine.
Almonds, ground	3	—	3	—	Easton's Syrup,	4	4	1	1
Arrowroot, ...	9	—	5	—	Essence of Rennet,	3	—	—	—
Bacon, ...	1	—	9	—	Extract of Malt and				
Baking Powder,...	1	—	—	—	Cod Liver Oil,	1	—	—	—
Baking Soda, ...	—	—	1	—	Figs, ...	6	—	3	—
Barley, ...	10	—	9	—	Fish, paste, ...	6	—	—	—
Beer, ...	3	—	—	—	Flour, self-raising,	11	—	9	—
Blood Pudding,	1	—	—	—	Flowers of Sulphur,	6	3	4	—
Borax, purified,	12	—	13	—	Fruits, canned,	21	—	—	—
Boric Acid Powder,	2	—	1	—	„ dried, ...	2	—	1	—
Brandy, ...	4	—	—	—	Gin, ...	12	1	2	—
Butter, ...	358	—	64	—	Ginger, ground,	21	1	7	—
Candied Peel, ...	5	—	4	—	Ginger, preserved,	1	—	1	—
Cheese, ...	45	—	13	—	Glycerine, ...	1	—	1	—
Cherries, preserved,	2	—	1	—	Golden Syrup,	1	—	—	—
Cider, ...	3	—	—	—	Gregory's Powder,	6	—	3	—
Cinnamon, ground,	24	—	13	—	Ham, ...	33	—	2	—
Cocoa, ...	20	—	8	—	Honey, ...	4	—	—	—
Cod Liver Oil Emul-					Lard, ...	25	—	16	—
sion, ...	2	—	—	—	Lemon Cheese, ...	3	—	1	—
Coffee, ...	37	—	16	1	Lime Water, ...	6	1	—	—
Coffee and Chicory,	1	—	—	—	Liniment of Tur-				
Cornflour, ...	7	—	3	—	pentine,	2	—	—	—
Cream, ...	24	2	5	—	Linseed, crushed,	6	—	—	—
Cream of Tartar,	30	—	7	—	Liquorice Powder,				
Currants, ...	10	—	3	—	compound,	4	—	6	—
Custard Powder,	13	—	2	—	Macaroni, ...	1	—	—	—
Dates, ...	3	—	—	—	Margarine, ...	12	—	12	—
Dripping, ...	33	—	28	—					
Drugs, miscellaneous,	15	—	—	—					

Nature of Sample.	Informal.		Statutory.		Nature of Sample.	Informal.		Statutory.	
	Number taken.	Number non-genuine.	Number taken.	Number non-genuine.		Number taken.	Number non-genuine.	Number taken.	Number non-genuine.
Meat, glassed, ...	3	—	1	—	Preserves, ...	37	—	1	—
„ potted, ...	9	—	—	—	Prunes, ...	19	—	12	—
Meat, paste, ...	8	—	—	—	Raisins, ...	7	—	6	—
Milk, condensed, full cream, sweetened,	7	—	—	—	Rice, ground and whole, ...	3	—	7	—
Milk, condensed, full-cream, evaporated, unsweetened,	12	—	—	—	Rum, ...	32	—	5	—
„ condensed, skimmed, sweetened,	17	—	—	—	Salts, medicinal.	9	—	—	—
„ dried, ...	9	—	—	—	Sauces, various,	7	—	4	—
„ dried and virol, ...	1	—	—	—	Sausages, ...	18	1	9	—
„ skimmed, ...	5	—	7	—	Sausage Meat, ...	—	—	4	2
„ sweet, ...	2,236	77	825	27	Seidlitz Powder,	1	—	—	—
Mince, ...	44	13	53	30	Semolina, ...	1	—	—	—
Minced meat, ...	4	—	—	—	Sponge Cakes, ...	5	—	2	—
Mustard, ...	11	—	6	—	Suet, shredded, ...	3	—	4	—
Oatmeal, ...	2	—	3	—	Sugars, ...	1	—	2	—
Oil, almond, ...	10	2	2	2	Sultanas, ...	12	—	8	—
Oil, camphorated,	25	—	2	—	Sweet Spirits of Nitre, ...	3	—	—	—
„ castor, ...	1	—	—	—	Syrup of Figs, ...	1	—	—	—
„ cod liver, ...	2	—	3	—	Tapioca, ...	2	—	7	—
„ eucalyptus, ...	6	—	2	—	Tartaric Acid, ...	21	1	6	—
„ olive, ...	29	—	3	—	Tea, ...	9	—	1	—
Ointments, various,	10	—	—	—	Tincture of Iodine,	11	1	3	—
Paregoric, ...	4	—	—	—	Tomato, canned,	3	—	—	—
Parrish's Syrup,	4	4	1	1	Treacle, ...	1	—	—	—
Peas, canned, ...	16	—	—	—	Tripe, ...	6	2	1	—
Pepper, black, ...	7	—	5	—	Vinegar, ...	6	—	4	—
„ white, ...	45	—	22	—	Whisky, ...	152	29	33	1
Pickles, ...	1	—	—	—	Wines, alcoholic,	3	—	—	—
Pork and Beans, canned, ...	1	—	—	—	„ non-alcoholic, 11	—	—	1	—
						3,789	142	1,332	65

THE FOOD AND DRUG (ADULTERATION) ACT, 1928.

Details of Samples in which Proceedings were instituted during Year, 1931.

Number of complaints.	Nature of sample and alleged offence.	Number of convictions.	Amount of fines imposed. £ s. d.	Number dismissed or found "not proven."	Number de-certified-impli-citer.	Number with-drawn and expenses paid.	Amount of expenses paid. £ s. d.
2	<i>Almond Oil</i> —Consisted of oil derived from the kernels of peach or apricot stones,	2	4 0 0	—	—	—	—
1	<i>Coffee</i> —Contained Chicory,	1	3 0 0	—	—	—	—
1	<i>Easton's Syrup</i> —Deficient in anhydrous ferrous phosphate,	1	3 0 0	—	—	—	—
1	<i>Margarine</i> —Failing to label,	1	3 5 9	—	—	—	—
11	<i>Milk (Sweet)</i> —Deficient in milk fat,	10	49 0 0	—	1	—	—
1	<i>Milk (Sweet)</i> —Deficient in milk solids other than fat,	1	5 0 0	—	—	—	—
3	<i>Milk (Sweet)</i> —Deficient in milk fat and in milk solids other than fat,	2	8 0 0	—	—	1	2 0 0
17	<i>Mince</i> —Contained sulphite preservatives during proscribed period,	17	47 15 9	—	—	—	—
2	<i>Mince</i> —Contained excess of sulphite preservatives during permitted period,	2	7 0 0	—	—	—	—
1	<i>Parrish's Syrup</i> —Deficient in iron and calcium phosphate,	1	3 0 0	—	—	—	—
1	<i>Sausage Meat</i> —Contained excess of sulphite preservatives,	1	5 0 0	—	—	—	—
41		39	£138 1 6	—	1	1	£2 0 0

ABSTRACT OF PROCEEDINGS UNDER OTHER THAN THE FOOD AND DRUGS ACT.

Nature of alleged offences.	Number of complaints.	Number of convictions.	Amount of fines imposed. £ s. d.	Number dismissed or found "not proven."
Merchandise Marks Acts and Orders—				
Imported Raw Tomatoes—Failing to label with indication of origin,	9	9	9 0 0	—
Imported Raw Tomatoes—Applying False description,	1	1	2 0 0	—
Imported Fresh Apples—Failing to label with indication of origin,	2	2	3 0 0	—
Milk and Dairies (Scotland) Order, 1925—				
Using milk bottles other than own,	16	16	54 0 0	—
Using milk churns other than own,	1	1	3 0 0	—
Using dairy boiler for washing or boiling of bed clothing,	1	1	7 0 0	—
Transferring milk from one vessel to another in other than registered premises,	1	1	2 10 0	—
Dairy Bye-laws—				
Bottling milk elsewhere than in milk store or bottling room,	2	2	5 10 0	—
Permitting persons to sit or rest their bodies on milk churns,	1	1	1 0 0	—
	34	34	£87 0 0	—

SECTION XI.

—

AIR PURIFICATION.

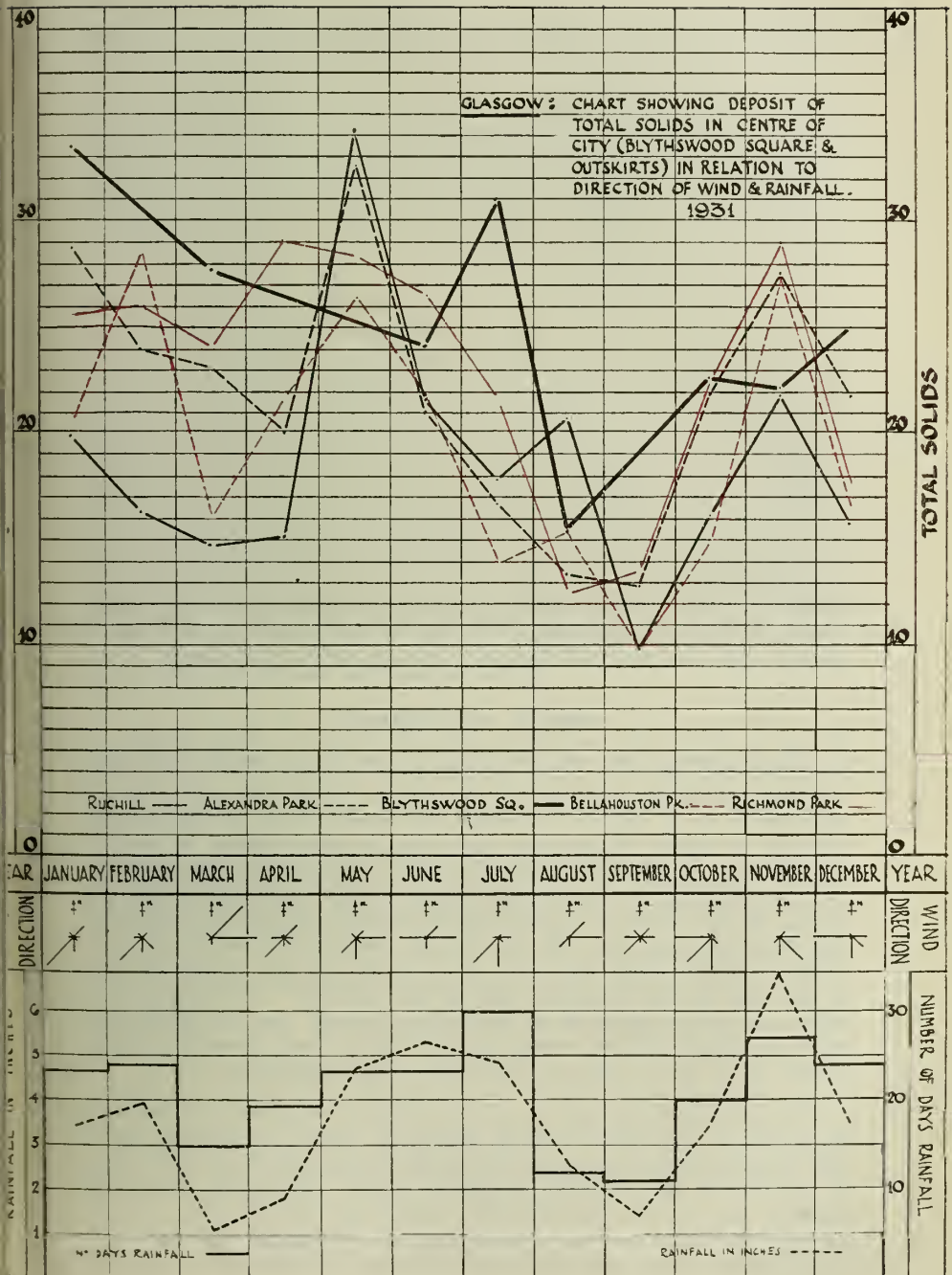
Two years ago, there were introduced into this section some notes on diagrams, published at the time, based on the records of (1) the total solids deposited by the rainfall in soot gauges placed in the public parks, and (2) the readings of the automatic air filters at five centres throughout the city. The diagram of the latter records showed that the pollution of the atmosphere increased rapidly from 5 till 11 a.m. on week-days, while there was a gradual reduction from then till about 2 a.m. on the following day. The rise on Sunday was more gradual and the maximum was not reached until about noon. The difference between the two curves indicated the pollution caused by furnaces and works chimneys, but the most important deduction drawn from the curves was that the atmospheric pollution, due to the domestic chimney, was apparently responsible for 75 to 80 per cent of the total.

Estimates of the amount of soot produced by these two sources of pollution vary, and the following paragraphs, quoted from the *Smoke Abatement Handbook*, published by the National Smoke Abatement Society, are of interest in this respect.

“*Domestic Smoke*.—Cohen and Ruston, on the basis of earlier determinations, estimate that 6% of the carbon in burnt coal in domestic grates is lost in smoke. This, with an annual consumption of 36 million tons is equivalent to nearly two million tons of carbon. On the average, domestic soot contains 60% of carbon, and it is therefore estimated (W. H. Bone) that 3·3 million tons of domestic smoke are produced annually.”

“*Industrial Smoke*.—The same authority also estimates that under industrial conditions there is a 1·5% loss of carbon in the burnt coal. With a factory consumption of 100 million tons of coal per annum, and taking 25% as the proportion of carbon in industrial smoke, we obtain a figure of 6 million tons of smoke and soot produced in factory chimneys each year. While the weight of this is almost double the estimated weight of domestic smoke, it must be borne in mind that the latter type contains more adhesive tarry matter, which renders it far more objectionable.”

Conditions of course vary in different towns, and the amount of atmospheric pollution will also vary with meteorological changes, rainfall, direction of wind, &c. The size of a town affects air filter records, as also do industries. Another factor is the thoroughness of the administration of the law governing the emission of excessive smoke.



From the meteorological point of view, it is interesting to compare the Glasgow record of deposits of total solids with those of London, as shown in the diagram on page 259 of the Annual Report for 1929. There it was shown that the atmosphere in Glasgow was not more polluted than that of London. The amount of soot deposited in the gauges is largely determined by the amount of rainfall, and as the rainfall in this part of the country is considerably greater than it is in the south-east of England, it is probable that, as the records of total solids per square kilometre for the two cities have been practically the same since 1915, the atmosphere in Glasgow is less polluted as compared with London.

This association of rainfall and soot deposit is illustrated in the foregoing diagram, which shows the records of deposit in the centre of the city and four points, namely, north-west (Ruchill Park), north-east (Alexandra Park), south-west (Bellahouston Park), and south-east (Richmond Park). The days on which the wind came from the various points of the compass are indicated to scale for each of the months. The number of days on which rain fell, and the rainfall in inches are also given. These data form an interesting study, especially to those who have an intimate knowledge of the layout of the city. From them can be ascertained the association between rainfall and direction of wind, and the amount of soot deposited in the various gauges in each part of the city. One general result may be noted, *i.e.*, that in spring and autumn, the total monthly deposits lessen with the rainfall, while in summer and winter, with a heavy rainfall, there is a marked increase in the deposits in the gauges.

SMOKE ABATEMENT.

The following notes are submitted by the Senior Smoke Inspector.

The immediate solution of the smoke problem is not easy of attainment in a country in which the main source of fuel supply consists of highly bituminous coal. As no great source of natural energy, such as waterfalls or rapid rivers, is available in these islands, we must perforce, for the present at least, depend upon the combustion of fuel in some form or another for the energy required for industrial and domestic purposes. We find in our efforts to abate the nuisance in the industrial field, that many more factors operate against us than is the case on the domestic side of the problem. Conditions exist which are not so amenable to immediate remedy, and the preventive methods adopted have, owing to the nature and diversity of the plants, to be more radical in their extent and application.

The principal drawback to greater progress being made in Scotland at present is the lack of uniform powers of control, a difficulty which will be reduced when a general Act for Scotland, somewhat on the lines of the English Act of 1926, becomes a reality. Extended areas with uniform powers of administration would get rid of many of the anomalies which meantime exist, such as two plants close to each other, one of which is permitted to discharge unhindered excessive

smoke, while the other is under close supervision and control because it is within an industrial boundary in which a local Smoke Abatement Act is actively administered.

The past twelve months being normal as regards the distribution of fuel supplies, the record of work done and the results noted indicate that the year has again been one of steady progress. The volume of smoke being emitted from industrial chimneys in Glasgow is being reduced for several reasons, while that which emanates from domestic sources is, in the aggregate, increasing. The former component of the problem, due to constant supervision, is kept well under control, although many plants are of such a nature that close attention on the part of the inspectors is necessary to maintain the standard that has been attained.

The duties of the smoke inspectors consist not only in detecting the smoke offender, noting and recording the extent of his transgression and enforcing the provisions of the Statute by reporting for prosecution persistent offenders, but also in assisting plant owners and operatives by their advice to avoid recurrent excessive smoke emissions, and incidentally to increase the efficiency of the plants and reduce oncost charges. This latter is considered a most important part of an inspector's duties, and as the result of efforts in this direction much success has accrued and many radical and lasting improvements have been achieved. By the practical advice offered daily and the technical instruction afforded by the special classes, much fruit has been borne, due to the persistent effort of this Department and the Scottish Branch of the National Smoke Abatement Society.

Improvements.—In spite of trade conditions it is possible to record creditable lists of improvements year by year. The past year has been no exception, and appended is a list of such improvements noted by the staff during their inspections of plants:—

Number of new steam boilers installed to give increased power,	14
Number of mechanical stokers fitted to steam boiler furnaces,	18
Number of secondary air smoke preventers fitted to steam boiler furnaces,	3
Number of furnaces in which anthracite, coke, or other non-bituminous fuel has been substituted for ordinary raw coal,	20
Number of steam boiler furnaces adapted for the smokeless combustion of oil fuel,	2
Number of steam boilers replaced by electric motors (using Corporation power,)	11
Number of furnaces in which gaseous fuel was substituted for coal firing,	1
Number of new chimneys erected, or existing chimneys heightened to give increased draught to carry gases higher,	15
Number of improvements to furnaces not coming under any of the above headings,	14

A number of the above improvements have been of a very radical nature and have involved the expenditure of large sums of money, as will be at once apparent when a few examples are cited.

Complaints, substantiated by observations, were received from time to time regarding smoke emissions from a large electrical station on

the western boundary of the city. It was found, that owing to the new electrical grid scheme of distribution, at certain periods an overload came on and part of the boiler plant had to be forced. The undertaking has now installed six water-tube boilers of the largest type, fitted with the most modern type of mechanical stokers, economisers, superheaters, grit collectors, &c., displacing several smaller units. The chimneys connected with this station have now for a considerable period been entirely satisfactory. An important baking firm in the Anderston district have, consequent on complaints being made, installed a large capacity water-tube boiler with the necessary auxiliaries, replacing a smaller and less efficient type, thus being able to extend their production without overloading the steam plant and without the consequent emissions of excessive smoke. A Co-operative Society has installed in a branch bakery in the Shettleston district two very efficient type steam boilers, fitted with patent "smoke consuming bridges," replacing a much smaller capacity vertical boiler. A large firm of rubber manufacturers in the Maryhill district fitted their steam plant, consisting of three large "Lancashire" type boilers, with "Underfeed" mechanical stokers. The chimney connected therewith had not been satisfactory, and had been the subject of previous prosecutions in years past. Intimations were served on the firm, when the management made these additions to the plant. The chimney is now almost smokeless. The scheme of electrification of existing steam operated cranes at the harbours undertaken by the Clyde Navigation Trustees is making considerable progress, and during the past year eight such conversions have been noted. These appliances, owing to the erratic nature of their operation when working, are the cause of much excessive smoke, and it is gratifying that this potential source of nuisance will soon be a thing of the past.

These examples indicate that many firms and authorities are taking the long view and are modernising their plant with a view to coping efficiently with the increased loads that will be the result of a return to more prosperous trade conditions: they are also actuated by a strong desire to operate their installations with the minimum of smoke emission.

Summary of Work.—The following is a summary of the work of the smoke inspection staff during the year:—

Number of inspections of steam boilers and other furnaces,...	1,307
„ observations of chimneys,	28,344
„ intimations of excess smoke given,	342
„ warning notices issued,	20

Prosecutions.—During the year a total of 48 prosecutions were taken for the excessive emission of smoke. These cases, being all of a technical nature, are heard before the Stipendiary Magistrate in the Central Police Court. The total includes both cases reported by the smoke inspectors and taken under the Glasgow Police (Further Powers Act, 1892, Section 31, and also those reported by the Traffic Police Patrols and taken under the Motor Vehicles (Construction and

Use) Regulations, 1931, Numbers 17 and 67. In these latter cases the smoke inspectors afford technical assistance and appear as witnesses for the prosecution. Of the total prosecutions taken, 44 were for first offences and the average fine, where a penalty was imposed, was £1 4s. 9d. Three were second offences with an average penalty of £1 16s. 8d., while one was in respect of a third offence under the further Powers Act, the fine being the maximum of £5. The aggregate fines imposed amounted to £53 15s. In two cases the respondents were admonished; in six cases a verdict of "not proven" was given; and one case was "dismissed."

Complaints Investigated.—A feature of the past year's work was the record number of complaints dealt with, no fewer than over one hundred separate cases being investigated. As each complaint generally requires at least two lengthy observations and then "follow up" observations and enquiries before remedial measures are adopted, a large part of the staff's time is thus spent on this aspect of the work. The public are now seriously awakening to the fact that a smoke nuisance need not and will not be tolerated, and as a result complaints are received from individuals, business firms, local committees, and the police themselves. Most of the complaints are occasioned by low chimneys adjacent to dwellings connected with small steam boilers, process furnaces, and heating plants invariably burning bituminous fuel. These smaller chimneys are not so easy of observation during routine work as are the larger industrial chimneys, and in consequence necessitate special enquiry. As has been stated before, the measure adopted for the removal of the nuisance is either substitution of non-bituminous fuel, alteration of existing flues and chimneys, or erection of new ones, installation of gas, electricity, or oil, or an increase in capacity of plant by additions, &c., advice on these points being always offered by the inspectors. A number of the complaints were found to be of a minor nature, while the majority were justifiable. In most cases a permanent remedy was effected.

Steam Waggons and Tar Melters.—As stated in last year's report, new legislation came into force for dealing with smoke emission from steam road vehicles. Order No. 4 of the Motor Vehicles Regulations, 1931, is proving very effective in the control of this nuisance and danger, and the police, particularly the Traffic Patrols, have been very active during the period under review. Being well equipped with vehicles to follow up the now fast moving steam waggons, and having the time and opportunity to concentrate on the main thoroughfares, much good work has been done. The principal cause of the excessive smoke emissions is the use of unsuitable fuels, too high in volatile content, or careless stoking, *i.e.*, excessive charging of the furnaces when there is little demand for steam. In affording technical evidence in these cases, the inspectors always emphasise the necessity of using only low volatile fuels, such as those of the South Welsh anthracite class, good quality gas coke, "smokeless fuel," or a mixture of either of the latter with a good semi-anthracite. Many waggon users already do so with good results.

Two convictions were obtained against the users of tar melters for heavy smoke emissions from these appliances. In both cases the stock of coke had been allowed to run out and recourse had to ordinary coal. When bituminous fuel is used in these furnaces they become veritable smoke producers unless the greatest care is exercised in stoking—rather more than the average attendant cares to bestow. Fortunately coke is now the fuel invariably used, and little trouble is experienced in consequence.

Shipping in the Harbour.—The river and dock areas were under both routine and special observation during the year, and a number of large vessels and smaller craft received special attention subsequent to reports of excessive smoke being received. Inspections were made on a number of liners and several prominent shipping companies received warning notices. The effect of this has been that each ship on arrival in the harbour is circularised by the companies concerned against the possible emission of smoke. At the beginning of the present year it was found necessary to proceed against a local steamship company in respect of a liner trading regularly to this port, a conviction being obtained. The "Scotch" multitubular boiler is the type almost universally in use for marine work, and this fact, coupled with fuel of generally a highly bituminous nature, makes the prevention of smoke a more difficult matter than is the case with, say, the usual "Lancashire" boiler, with long brick setting and side flues used in shore practice. With a methodical system of stoking employed and insisted upon by the ship's staff, there is no reason, however, why the emissions should not be kept down to the minimum and well within the standard laid down by the Health Committee of the Corporation.

Soot Collecting Gauges.—The soot and dust fall from the atmosphere for the period, January to December, 1931, as indicated by the gauges from the nine collecting stations situated throughout the city amounts to an equivalent figure of 262.16 tons per square mile, as compared with 273.58 tons for the preceding year—a decrease of 11.42 tons per square mile. The previous six years' average gives a figure of 285.6 tons per square mile, and this compared with the figure for the past year shows a reduction of 23.44 tons for 1931. It might be stated again that the amount of aerial impurities precipitated by the rainfall depends both upon wind direction and also the frequency of the showers. A "little and often" would have a much more effective washing result than protracted downpours. One example of this is shown during the year. During the month of May the rainfall amounted to 91.58 millimetres over short frequent intervals, and the equivalent precipitation amounted to 32.94 tons per square mile, while during November the rainfall was 129.76 millimetres, almost continuously, and the precipitation of impurities was only 23.97 tons. Again, there is considerable divergence in the total deposits obtained from the respective stations. For example, the gauge at Alexandra Park gives a deposit of 264.42 tons per square mile, being in the direct path of the prevailing wind over the city, while Queen's Park only gives 177.10 tons, the gauge being practically clear of any concentration of wind-borne impurities.

AVERAGE DEPOSIT OF EACH ELEMENT OF ATMOSPHERIC POLLUTION FOR EACH MONTH OF 1931.

		English Tons per Square Mile.											
Month.	Rainfall in Millimetres.	Insoluble Matter.				Soluble Matter.				Included in Soluble Matter			
		Tar.	Carbonaceous other than Tar.	Asb.	Total Insoluble Matter.	Loss on Ignition.	Ash.	Total Soluble Matter.	Total Solids 1931.	Sulphate as SO ₃ .	Chlorine as Cl.	Ammonia as NH ₃ .	Total Solids.
													1930. 1929. 1928. 1927. 1926. 1925.
Mean of 9 Stations	69.42	.28	3.53	6.85	10.66	6.61	6.31	12.95	23.61	3.43	2.21	.12	21.04 24.19 31.13 26.63 23.57 24.16
" 8 "	87.72	.27	3.25	7.30	10.82	4.66	6.57	11.23	22.05	3.35	1.62	.14	20.65 17.68 26.08 21.60 19.32 19.99
" 9 "	26.91	.25	3.72	9.63	13.60	3.19	3.20	6.39	19.99	1.93	.39	.10	22.54 21.51 24.58 18.58 21.48 17.28
" 8 "	36.66	.27	4.43	8.20	12.90	3.12	4.54	7.66	20.56	2.41	.59	.33	19.65 20.88 18.03 21.85 18.63 26.02
" 8 "	91.58	.34	5.92	13.26	19.52	4.24	9.18	13.42	32.94	4.15	.52	.08	17.22 22.64 21.56 22.17 20.97 28.75
" 9 "	114.78	.15	3.96	8.11	12.22	3.18	8.33	11.51	23.73	3.57	.49	.29	26.26 23.81 28.41 31.25 19.92 15.98
" 9 "	86.28	.23	4.43	8.41	13.07	3.36	8.80	12.16	25.23	3.66	.50	.42	22.11 17.73 20.97 26.87 29.90 23.04
" 9 "	52.39	.16	2.78	7.36	10.30	2.22	4.08	6.30	16.60	2.12	.34	.32	26.49 30.07 23.08 34.45 30.79 23.22
" 7 "	30.45	.25	2.13	4.91	7.29	1.81	3.35	5.16	12.45	1.55	.18	.10	22.70 15.10 18.25 25.16 19.82 18.40
" 9 "	68.11	.17	4.12	7.14	11.43	4.30	6.24	10.51	21.97	3.03	.99	.35	21.71 26.13 31.28 32.86 22.38 24.17
" 9 "	129.76	.10	3.29	7.33	10.72	6.58	6.67	13.25	23.97	4.51	.85	.55	24.07 29.42 23.85 19.90 39.94 14.30
" 9 "	67.96	.22	3.40	5.11	8.73	4.21	6.12	10.33	19.06	2.33	1.78	.15	28.64 29.04 23.63 13.12 19.16 36.30

Yearly Deposit in Tons per Sq. Mile. 862.02 2.69 44.96 93.61 141.26 47.51 73.39 120.90 262.16 36.04 10.46 2.35 273.38 278.20 296.85 317.44 275.88 271.61
 Monthly Mean of all Gauges, 71.84 .22 3.75 7.80 11.77 3.96 6.12 10.08 21.85 3.00 .87 .25 22.80 23.19 24.74 26.45 22.99 22.63

The table appended hereto gives the average monthly deposit of each element of atmospheric pollution for the year.

Classes on Smoke Abatement, Boiler Efficiency and Furnace Management.—Reference has been made in past reports and earlier in this present one to the importance of these classes as an adjunct to the daily work of the inspectors, and further evidence of the practical value of the courses is afforded by the continued interest shown by not only stokers, but also engineers, both works and river craft, works managers and foremen, and many others having in some capacity the direction and control of boiler and furnace plants. These classes, held under the auspices of the Scottish Branch of the National Smoke Abatement Society in collaboration with this Department, form the only course of this nature at present organised, and meet on one evening of the week during the six winter months, September to March, the session just closed being the sixteenth since their inception in 1910 (discontinued during the war years). Two classes, an ordinary and an advanced, were carried on, a total of twenty-four lectures being delivered, while the usual nominal fee of 2s. 6d. was charged for the course. The class examinations were held after the conclusion of the session. The total enrolment was 92, thus maintaining the high figure of the previous two years. Again an outstanding feature was the high average attendance of 81.6 per cent. for the session.

To the written examination held on 12th March forty-five men came forward to compete for the three prizes allocated to each class. Merit certificates of competency are gained by those having 70 per cent. marks (a high pass mark), and full attendance certificates are awarded those qualifying for same and not eligible for a merit. Twenty-four men in the ordinary and eleven in the advanced class gained merit certificates, while a total of fifty-three members had made full attendance.

The prizes and certificates are presented at the Annual Social Meeting of the Branch.

THOS. M. ASHFORD,
Senior Smoke Inspector.

April, 1932.

SECTION XII.

GENERAL SANITARY OPERATIONS.

DISINFECTION.

The following tables summarise the washings and disinfections carried out at Ruchill and Belvidere Disinfecting Stations during the year 1931 :—

	Belvidere.	Ruchill.	Total.
Number of washings,	10,026	8,767	18,793
Average number per day,	33·0	28·5	61·5
Articles washed and disinfected, ...	331,185	347,182	678,367
Average number of articles per washing,	33·0	39·6	36·1
Fuel consumed (tons),	626	582	1,208
Fuel used per article (lbs),	4·22	3·75	3·99
Soap and powder used per article (ozs),	·34	·30	·32
Disinfectant " "	·51	·51	·51

NUMBER OF WASHINGS, ARTICLES DISINFECTED, &c., FOR YEARS
1921-31 INCLUSIVE.

	Washings.	Articles.	Sprayings.	Whitewashings.
1921,	18,060	655,867	19,196	21
1922,	14,837	533,450	9,418	21
1923,	14,423	526,285	8,008	2
1924,	14,690	510,275	8,405	3
1925,	14,408	530,777	8,473	2
1926,	15,992	620,038	9,806	—
1927,	16,323	648,516	10,495	2
1928,	15,135	584,257	9,219	—
1929,	14,593	590,676	10,076	27
1930,	16,996	617,675	12,222	17
1931,	18,793	678,367	13,545	13

Books disinfected, 2,313.

Fumigation of Vessels.—Most of the fumigations of vessels for disinfestation of rats are done by this department. Information regarding this matter is given in the report of the work of the Port Local Authority, which forms Section IX.

Disinfection of Second-hand Clothing, &c.—Disinfection of second-hand clothing for export to Ireland, as required by the regulations issued by the Irish Free State, continued through the year. In all, 1,711 consignments were disinfected and certificates issued, the total amount received in respect of charges being £372 5s. 11d.

Disinfection of Straw Coverings.—In order to comply with the regulations of various countries, the arrangements for the disinfection and certification of straw coverings were continued during the year. No additional names have been added to the list of those providing suitable chambers for this purpose, and the former arrangement whereby the Department is notified when a supply of packing is to be disinfected continued.

OFFENSIVE TRADES.

There were on the register of offensive trades in the city at 31st December, 69 businesses coming under this category, which is the same as the number at the end of the preceding year. There were two changes, one tallow melter having given up business, while one additional soap boiler obtained a licence for premises in the eastern district of the city.

The nature of the businesses is shown in the following statement—

	1931.	1930.
Bone boilers,	8	8
Tallow melters,	20	21
Manure manufacturers,	8	8
Gut cleaners,	3	3
Hide and skin factors,	8	8
Soap boilers,	11	10
Tanners,	7	7
Glue and size manufacturers,	2	2
Horse slaughterer,	1	1
Knacker,	1	1
	<hr/> 69 <hr/>	<hr/> 69 <hr/>

Particulars regarding the administrative supervision of the premises in which these businesses are situated and of the renewals of registration and the new licence granted are given in the reports by the Divisional Sanitary Inspectors which follow.

Manufacture of Fish Meal.—Intimation was received of a proposal to establish a business of this nature in the Govan District of the city. The product was to be used for poultry, cattle and pig feeding, and for human consumption in the form of fish cakes. Business of this nature was not included in the list of offensive trades as required by Section 32 of the Public Health (Scotland) Act, 1897. In view of the importance of the matter, however, the Corporation on 5th March drafted an Order declaring the business of manufacturer of fish meal or fish manure or other like substances manufactured from fish or fish offal to be an offensive trade under the above Section. The Order was approved by the Department of Health for Scotland on 19th March.

The project was apparently not proceeded with when the applicant became aware of the stringent precautions which would require to be taken.

GENERAL SANITARY OPERATIONS.

The reports by the Divisional Sanitary Inspectors are included in this section; they deal with the work of the department as given in detail in Table XXIII. of the Appendix, which contains tabulated particulars of inspections, nuisances, &c., in each municipal ward and for the city. References are made to the principal statistics for each division, and comments are made on the more important complaints or problems arising during the year.

CENTRAL DIVISION.

The outstanding event of 1931 was the removal of the Division from the central offices at Montrose Street to 151 Bath Street, which is eminently suitable for the Divisional staff. Although the whole of the staff is concentrated in Bath Street, the nucleus of a branch office in the old Partick premises has been retained. This has been found very convenient for local enquiries, complaints, notifications, &c., which together numbered 621 during the last quarter of the year.

The greatest number of complaints received during the year again refer to the cleansing, or rather non-cleansing, of stairs, closes and water-closets. No fewer than 26,870 visits are recorded regarding such. 5,488 notices and rotation cards were issued, including 3,723 verbal warnings.

Drains, &c., choked or defective, come next with 3,463 notices. 1,332 notices regarding dampness or disrepair in dwelling houses were issued, and 1,071 regarding choked or defective sanitary fittings. 494 notices were issued calling for the removal of accumulations of refuse. It is pleasing to note that one form of this nuisance—the throwing of refuse from windows—is on the down grade. In any property where this form of nuisance is prevalent circular letters of advice and warning are issued and this usually results in an improvement. The demolition of the slums is also helping in this respect.

Nuisances by dogs on pavements and in back-greens is a growing source of complaint which is well founded, and the difficulties in overcoming this nuisance seem to be insurmountable. Powers for dealing with such nuisance are rather vague and do not strike at the root of the nuisance which is committed by masterless dogs and even by dogs on leash. At present there is no direct power to deal with offenders, and so long as dogs are kept in tenement houses it is difficult to contemplate powers which could be enforced. A report on this matter was prepared some time ago and submitted to the Committee on Health.

Complaint was made by Knightswood Ratepayers Association regarding a potential source of nuisance in Blairdardie Quarry. At one time the quarry was used as a dumping ground for the household refuse of Yoker and for the refuse from one of the shipbuilding yards.

The Cleansing Department had agreed to discontinue the use of the quarry as a coup for household refuse. The quarry is now being filled up very rapidly and without nuisance, as Messrs. Barclay Curle are constructing a new graving dock at Elderslie, and twelve steam lorries are working day and night conveying the soil excavated to the quarry at Blairdardie.

Complaints from residents in Anniesland District of offensive smell have not been so numerous in recent years. The departmental enquiries amongst the local manufacturers seem to have had a beneficial effect. In the autumn a serious and widespread complaint of offensive smell was made by the residents in the Whiteinch district. In addition to the offensive nature of the smell itself, brasswork was tarnished and in one case discolouration of an enamel bath had occurred. It was suggested that the smell was possibly the result of gas emitted from a galvanizing work, but this has not been substantiated.

Common Lodging-houses.—As mentioned in previous reports, the small common lodging-house is almost eliminated. There are, in this Division, thirteen houses on the register with accommodation for 3,119 lodgers. Only three have less than 100 beds. Five have over 300 beds. Reports on each of the houses are made monthly by the district inspectors. 587 visits were made to the lodging-houses during the year, 539 day visits and 48 night-time. 53 contraventions of the bye-laws were notified. In no case was it found necessary to take court proceedings to secure conformity to the bye-laws, but in one case, in which it was found necessary to demand the repainting of all woodwork, proceedings had to be threatened. There are, in addition, ten houses with accommodation for 441 lodgers, registered as Seamen's Boarding Houses.

Farmed-out Houses.—460 houses have been registered as farmed-out houses. These houses are also reported upon monthly. Day visits numbering 3,348 were made and 1,800 during the night; 635 contraventions of the bye-laws were notified. The contraventions related mainly to lack of necessary furnishings and bedding. Structural defects—broken plaster and defective woodwork—are numerous; it is seldom necessary to complain regarding lack of cleanliness. In several instances, houses—usually large houses in better class districts—were found to be used in such a manner as to make their declaration as farmed-out houses necessary, although undesirable. Before advising the Local Authority to declare such houses, the owner was advised, and in all such cases, rather than permit the existence of farmed-out houses in the property, he has brought about a change of tenancy. In one case a number of coloured seamen were found resident in a tenement of farmed-out houses—a very undesirable state of affairs. The principal tenant was warned that giving accommodation to seamen constituted the house a common lodging-house. Application was made for registration as a C.L.H., but this was refused, and the

principal tenant was advised to get rid of the seamen. They obtained accommodation in a near-by common lodging-house. The farmed-out houses on the register are far from being fully occupied at the present time. The high rents charged seem to make it difficult to secure lodgers.

Ticketed Houses.—There are 2,324 ticketed houses on the register, 1,166 of one-apartment, 1,135 of two-apartments and 23 of three-apartments. 491 are overcrowded under the legal standard of 400 cubic feet per adult. No court proceedings have been taken regarding overcrowding for some time. Only when the overcrowding is caused by lodgers is pressure brought to bear upon the tenant. The advice given, to cease giving accommodation to lodgers, is usually accepted.

Drainage.—Since the completion of the Scottish Legal Building in Bothwell Street and the Dental Hospital in Renfrew Street there have been no extensive building operations in the business part of the city. In the western part of the Division building has continued on a more extensive scale. During the year four new schools have been erected, the large 'bus garage at Knightswood has been built, and 400 houses in the same area have been completed. In not a few instances in the Western-Central area, tenements, lacking modern conveniences, have been renovated and brought up-to-date by the installation of hot water and modern sanitary fittings.

Rag Flock.—Twenty-one samples of rag flock were taken during the year. Twenty were found to be within the standard of cleanliness set up by the regulations, the analysis showing results ranging from 3.1 parts of chlorine per 100,000 to 29.1 parts of chlorine per 100,000 parts of rag flock. The remaining sample contained 146.6 parts per 100,000, but did not come within the definition of rag flock, not having been made from worn garments.

Workshops and Workplaces.—Over ten thousand visits of inspection were made to workshops and workplaces of which, including bake-houses, there are 1,601 on the register. In the course of inspection 486 defects were found. These consisted mainly of lack of cleanliness, defective light or ventilation, inadequate or defective sink or W.C. accommodation and, in one instance, an unusual occurrence in workshop inspection, overcrowding. In three instances court proceedings were found necessary.

Prosecutions.—On twelve occasions court proceedings had to be instituted, three in the sheriff court and nine in the police court. In one instance—a sheriff court case regarding a dirty workshop—the case was abandoned on the occupier engaging to carry out the work of cleansing and to pay the court expenses. In the remaining cases fines, ranging from 2/6 to 42/-, were imposed.

Re-housing Schemes.—The tenants in the re-housing schemes at Yorkhill and Scotstoun are still keeping their houses in a satisfactory condition. In a great many cases, however, the husband is out of employment and the lack of money is apparent. As in previous years, following a personal letter to each of the tenants a visit to each house was made during the closing week of the year. The houses were remarkably clean, and it was gratifying to observe the degree of house pride exhibited by families who formerly resided in Clyde Street, Piccadilly and Cheapside.

Scotstoun scheme is in even better condition than Yorkhill. The people here were mainly formerly resident in Richard Street although, in this case, there were a good many exchanges. In visiting these houses it is difficult to realise that one is inspecting a re-housing scheme, so well are the houses furnished and so cleanly kept. Out of 1,487 visits the lady inspectors report 1,350 clean, 132 fair, 4 unsatisfactory and 1 dirty. A third scheme, the Whiteinch Re-housing Scheme, has been completed and occupied during the year. The occupiers are from Calton district, and each of them was personally visited after removal. The people are extremely poor, a large proportion being unemployed. Many are not reconciled to their removal so far from the east end of the city and a few will shortly migrate eastwards. However, the houses were clean and the majority of the housewives expressed pride, and showed it, in their new homes. The lack of floor-covering makes the work of cleansing difficult, for there is such a wide expanse of floor to scrub frequently. A supply of pamphlets on "Health in the Home" has been issued.

Back-lands.—In 1921 a detailed survey was made of the back-lands in the Central Division and the result of this survey was published in the annual report of that year. It may be interesting to show what changes have taken place during the intervening decade.

In 1921 the back-lands were divided into six groups as follows:—

1. Houses officially closed but still occupied.
2. Houses represented as unfit for human habitation, but with appeals pending.
3. Houses that could be represented as unfit for human habitation.
4. Houses situated in obstructive buildings.
5. Houses badly situated only.
6. Houses in good repair and well situated.

In group 1, there was one tenement containing 9 two-apartment houses with a population of 31 adults and 9 children. In group 2, there were 10 tenements containing 21 houses of one-apartment and 77 houses of two-apartments, the population being 270 adults and 108 children. In group 3, there were 17 tenements—57 houses of one-apartment, 67 of two-apartments and 11 over two-apartments. The population in this group was 393 adults and 151 children. It is satisfactory to record that all the tenements in these three groups have been demolished through the operation of closing and demolition orders, and the making of slum clearance schemes.

Group 4, back-lands "obstructive" only, embraced 17 tenements, 128 houses of one-apartment, 108 of two-apartments and 4 over two-apartments. In group 5, back-lands badly situated, there were 14 tenements—22 houses of one-apartment, 83 of two-apartments and 9 over two-apartments. Of these two groups, 46 per cent. of the houses have been demolished and this was achieved entirely through slum clearance operations. In the last group (*i.e.*, group 6) there were 19 tenements—22 houses of one-apartment, 83 of two-apartments and 9 over two-apartments. In this group there has been no alteration except that several properties included in the group have been removed from the category of back-lands by the demolition, through slum clearance schemes, of intervening properties.

The total number of back-lands now remaining in the Central Division is 26, containing 310 houses, against 77 containing 798 houses in 1921, showing a demolition of 51 tenements or 488 houses. The total population of the back-lands in 1921 was 2,284 adults and 948 children. To-day the population is 855 adults and 352 children. The greatest transformation is shown in Ward 12 (Exchange). In 1921 there were 31 back-lands containing no less than 8% of the total dwellings in this ward. Through the operations of slum clearance schemes, demolition orders and closing orders, there are now only 9 tenements containing 81 houses, representing 2.25% of the dwelling houses in the Ward. This statement shows a fairly satisfactory record of achievement. The houses comprising groups 1, 2 and 3 have been entirely demolished. Forty-six per cent. of those in groups 4 and 5 have been demolished and some of the remainder have already been represented as unfit for habitation, while others are waiting a favourable opportunity for representation. We are now left with the back-lands in group 6 of the 1921 survey, at that time classed as houses in good repair and well situated. The complete elimination of the back-land from the Division seems at last to be within measurable distance. From the statement on overcrowding in the Division given elsewhere it will be noticed that, of the 310 back-land houses, 50 are overcrowded on the cubic feet standard, 95 on the standard of $2\frac{1}{2}$ persons per apartment and 75 on the separation-of-sexes standard.

Slum Clearance Schemes.—Four Slum Clearance Schemes have been promoted in the Central Division—the schemes of 1923, 1926, 1927 and 1928. These embraced 94 tenements containing 1,132 dwelling houses and they have all been demolished. In addition a large number of tenements have been demolished or converted into business premises. As an illustration take the Exchange and Blythswood wards together, forming as they do the centre of the city. During the decade 1921-31, by closing orders, demolition orders, buildings declared dangerous by the Dean of Guild, and tenements converted to business premises, 43 front-lands containing 409 houses have been dealt with. These figures would have been much greater but for the fact that in the earlier part of the decade it was illegal to demolish any dwelling house.

This brief survey of improvements effected in housing during the past ten years suggests a statement as to the present position. There are not many houses remaining which could be classed as uninhabitable solely on the grounds of dilapidation, but there are many which, on account of congestion, design, lack of domestic conveniences and overcrowding can be placed in this category. As an illustration—there are two blocks of tenements, three front and three back lands, in which there are 164 houses, 125 of one-apartment and 39 of two-apartments, with a population of 624 persons—425 adults and 199 children. The area occupied by these six tenements, including courts, and measured to the centre of the street, is 2,160 square yards. The rate of density is, therefore, approximately 367 houses per acre and 1,399 persons to the acre, against 8·7 houses per acre and 36 persons to the acre for the whole city. It will be recalled that in the 1923 Slum Clearance Scheme the Richard Street area showed 250 houses to the acre and 1,116 persons to the acre.

Overcrowding.—A table showing the present extent of overcrowding in three classes or groups of houses is attached. 1. All “ticketed” houses in the Division. 2. All back-land houses. 3. The Central Division quota of houses classed as uninhabitable. The table shows the degree of overcrowding under three standards. 1st. The present legal standard of 400 cubic feet air space per person—child under ten years, 200 cubic feet. 2nd. The standard of $2\frac{1}{2}$ persons per apartment. 3rd. The standard of sex separation over ten years of age—husband and wife occupying the same apartment.

There are 1,166 one-apartment “ticketed” houses and of these 283 or 24% are overcrowded under the first standard; 499 houses or 42% are overcrowded under the second standard, and 280 or 24% under the third standard. Of this last 280 houses, 251 are in addition overcrowded under the second standard and 29 on sex separation only. There are 1,135 two-apartment “ticketed” houses, and of these 201 or 17% are overcrowded under the first standard, 244 or 21% under the second standard, and 299 or 26% under the third standard, 202 of the 299 being also overcrowded on the second standard and 97 on sex separation only. There are 23 “ticketed” houses of three-apartments and of these 7 are overcrowded under the first standard, 2 under the second standard, and none on the sex separation standard.

Of the 310 back-land houses, 152 are of one-apartment, 23 or 15% of which are overcrowded under the first standard, 66 or 43% under the second standard, and 39 or 25% under the sex separation standard. Of these latter, 36 are, in addition, overcrowded on the basis of $2\frac{1}{2}$ persons per apartment and 3 on sex separation grounds only. There are 146 two-apartment houses in the back-lands. 26 or 17% are overcrowded under the cubic capacity standard, 28 or 19% under the standard of $2\frac{1}{2}$ persons per apartment and 36 or 24% under the sex separation standard, 20 being overcrowded under both second and third standards and 16 on sex separation only. There are only 12 houses of three-apartments in the back-lands and of these one is

overcrowded under the first standard and one under the second standard.

SUMMARY OF OVERCROWDING.

Class,	Total No. of Houses,	Cubic Basis.		2½ per Apt. Basis.		Sex Sep. only.		
		No. of Houses and %.		No. of Houses and %.		No. of Houses and ½.		
One Apartment.								
Ticketed,	...	1166	283	24%	499	42%	280	24%
B.L.'s,	...	152	23	15%	66	43%	39	25%
Uninhabitable,	...	878	—	—	289	32%	163	18%
Two Apartments.								
Ticketed,	...	1135	201	17%	244	21%	299	26%
B.L.'s,	...	146	26	17%	28	19%	36	24%
Uninhabitable,	...	1289	—	—	234	18%	309	23%
Three Apartments.								
Ticketed,	...	23	7	30%	2	8%	—	—
B.L.'s,	...	12	1	8%	1	8%	—	—
Uninhabitable,	...	161	—	—	20	12%	—	—

The Central Division quota of one-apartment houses in the third group—houses classed as uninhabitable—is 878. The overcrowding for this group under the cubic capacity standard is not known, but 289 or 32% of these one-apartment houses are overcrowded under the standard of 2½ persons per apartment and 163 or 18% under the sex separation standard. Of these, 148 are overcrowded under both standards and 15 on sex separation grounds only. There are 1,289 two-apartment houses in the list of uninhabitable houses. 234 or 18% have more than 2½ persons per apartment and 309 or 23% are overcrowded on the sex separation standard. Of these, 198 are doubly overcrowded under standards 2 and 3, and 111 are overcrowded on sex separation only. There are 161 houses of three-apartments in this list of uninhabitable houses, and 20 of them have more than 2½ persons per apartment. There is no overcrowding under sex separation in the three-apartment houses.

April, 1931.

WILLIAM ROY,
Divisional Sanitary Inspector.

NORTHERN DIVISION.

The population of the nine wards comprising the Northern Division was 273,814 according to the census figures, an increase of 19,617 as compared with the population of 1921. Apart from normal increase this added population is due to the extension of the city boundaries in 1925, and also to the inflow of population to the extensive housing schemes which have grown up during the last ten years. One satisfactory feature indicated by the figures is the movement from the congested central wards to the more sparsely populated wards on the fringe of the city boundary. For example, in Cowcaddens where the population in 1921 was 42,397, it is now 35,713, a decrease of 6,674,

which is mostly accounted for by slum clearance operations. In this ward alone during the last decade 1,129 houses have been demolished, and most of the dispossessed families were re-housed in areas outwith the ward.

General Nuisances.—The nuisances dealt with are detailed in Appendix, Table XXIII. They did not vary greatly in number or in character, as compared with immediately preceding years. Chokage of drains still remains the greatest single cause of nuisance, and while much of this is doubtless due to the multiplicity of traps in drainage systems and the consequent obstruction to the flow of sewage, a considerable part is due to improper use of sanitary fittings. This was strikingly exemplified recently in the case of a bad chokage of the drainage of a tenement property in Provan Ward. Here it was found, after the owner's tradesmen had been employed for several days in opening up the drains, that the chokage was due to a collection of empty condensed milk tins, washing-cloths, bones, &c., which had completely obstructed the main drain. In the case of another chokage, which was cleared only after much difficulty, the obstructing material was washing-cloths, and, unfortunately although the identity of the defaulting tenant was fairly evident, it was not conclusively established. Owners are often blamed for negligence in the matter of repairs to property, and no doubt in some cases justifiably, but tenants are by no means beyond reproach, and a certain class are either grossly ignorant or careless with regard to the legitimate use of sanitary fittings.

Complaints with reference to nuisance caused by cats and dogs are not uncommon. Much annoyance and irritation may arise from the keeping of animals in tenement property, but to find an effective remedy is often a matter of extreme difficulty.

For no apparent reason complaints of offensive smells were more numerous than usual. On investigation, it was found that in some cases these were due to untrapped street gulleys, and in others to effluvia from manufacturing processes, &c. Enquiries are being continued with regard to some of these complaints, but where the causes were definitely established appropriate remedies were called for, and were ultimately provided. A "smell" complaint, lodged by a householder in the north-western part of the Division, was the subject of numerous inconclusive inspections. In this case the complainers, who were the occupants of a semi-basement house, appeared to be genuinely convinced that offensive smells were at intervals pervading the house, but exhaustive enquiry, testing of drains and gas mains, and examination of sewers, have so far failed to reveal any evidence to support the complaint.

Flooding of the basements of business premises from sewers during abnormal rainfall, was also the subject of enquiry. The sewers in some localities are, under certain conditions, liable to become surcharged, but the onus of preventing these floodings lies with the owners, as the Corporation are not liable for any flooding of premises

situated below the street level. In order to prevent such floodings, ball traps and tidal valves have in some instances been provided, but where it is convenient to have them installed, screw-down valves are probably the most certain means of protection.

During the summer months considerable trouble was caused to occupants of houses in one of the housing schemes by a small greyish-white insect, which was identified as the "book louse" (*Atropos Divinatoria*). This insect (the presence of which in these houses is still unexplained) was a source of worry to the housewives concerned, and as it was present in considerable numbers in a few of the houses, its suppression necessitated a good deal of painstaking effort. The insects disappeared with the approach of the cold weather, but it is not certain that their disappearance is final.

Drainage.—The drainage connected with eight housing schemes, the building of which was in progress during the year, was supervised, and the smoke-test was applied to the drains of 211 old tenement buildings, most of which were found to be in a more or less defective condition. In three instances the drainage had to be entirely renewed. Every opportunity is taken to secure the abolition of the "pan" type of water-closet, and as a result of representations to owners 91 of these insanitary fittings were replaced by wash-down closets.

Sub-Division of Houses.—The large and increasing number of houses of five apartments and over that are standing empty is a matter of concern to property owners, and there are indications that it is beginning to be realised that, in order to attract tenants, many of these houses will have to be made down into dwellings of smaller size and with modern conveniences. The only important sub-division of large houses was carried out in a tenement property in Townhead. This building, which had an exceptional length of frontage and was specially well adapted for sub-division, contained eight five-apartment houses—two on each flat. These were sub-divided into four houses of two-apartments in the ground flat, and three of three-apartments on each of the upper flats, or thirteen in all. A bathroom and a hot-water supply were installed in each, and in most of them sculleries were also provided. Drainage was renewed throughout, and the reconstruction as a whole is a good example of what can be done in the way of sub-division. The centre houses in the upper flats are not through-and-through, but it was, of course, impossible to have all three in each of these flats of that type. Being centrally situated, the houses are convenient for families who cannot afford the expense of travelling to outlying districts and they were fully occupied immediately after completion.

An example of sub-division of a less desirable kind was carried out in a building situated in Woodside Ward. In this case the building, which is a poor structure of two storeys, contains six apartments, and was formerly a single, self-contained occupancy. Some time ago, however, it was let to a tenant who furnished or partly furnished the

apartments, and sub-let them to separate occupiers, who in some cases were families in which there were young children. The charges for the apartments vary from 6s. to 8s. per week. There is one water-closet in the building, and the water-supply is obtained from a tap in one of the apartments. These houses could be declared to be farmed-out houses and regulated by bye-laws, but it is unfortunate that there should be no means of entirely preventing such a retrograde method of providing housing accommodation for families.

Housing.—Demolition orders were made with regard to 131 houses. These were all houses of the poorest description, and included among them were 16 basement houses. Undertakings, in terms of sub-section 2 of section 16 were given regarding 24 of the houses, 45 have been demolished, and at the end of the year 62 were awaiting demolition. The demolition of the 556 houses in this Division included in the 1928 clearance scheme was completed during the year. A preliminary survey was made of an area in Garngad proposed to be dealt with by a clearance scheme. This scheme may ultimately include over 600 houses.

Intermediate Houses.—The table hereunder refers to 460 of the houses most recently occupied. Intermediate houses are primarily intended for overcrowded families, but a certain number are allocated for the better housing of tuberculosis cases. In ordinary circumstances, they are let to families of four persons and over whose incomes are limited. As will be observed, the improvement with regard to overcrowding is greatest in the case of the 53 families from single-apartment houses, 4·7 persons per apartment under the old conditions having been reduced to 1·7 in the new. Comparison is also made of the average monthly rents (including rates) of the old houses with the rents of the houses to which the families removed.

Old Conditions.				New Conditions.			
Size and Average Rents of Houses Vacated.	Number of Families.	Population.	Average Number of Persons per Apt.	Size and Rents of New Houses.	Number of Families.	Population.	Average Number of Persons per Apt.
1 Apt. (£1 7s. 8d.)	53	257	4·7	3 Apts. (£2 5s. 6d.) and (£2 14s. 2d.)	368	1,833	1·7
2 Apts. (£1 14s. 6d.)	329	1,811	2·8				
3 Apts. (£2 6s. 3d.)	54	327	2·0	4 Apts. (£2 12s.)	92	674	1·8
4 Apts. (£2 19s. 6d.)	6	32	1·3				
5 Apts. (£3 16s.)	2	9	·9				
From Lodgings,	16	71	—				
Totals, ...	460	2,507	2·7	Totals, ...	460	2,507	1·7

Analysis of the composition of these families, excluding the 16 lodger families, shows that on a standard of three persons per room and sex separation at 10 years of age, 54 per cent. were overcrowded under the old conditions.

Re-housing Schemes.—Particulars with reference to the condition in which the houses were kept during the year are detailed elsewhere in this report. In all 2,135 were in occupation, and supervision of these was maintained. In the case of houses which are kept in a clean condition, the visits of the supervising inspectors are comparatively few, but to the badly kept and dirty houses frequent visitations are necessary. There has been found, here and there, a tendency to resent the visits of the inspectors, but tenants have it in their own power to reduce these to a minimum by keeping their houses up to a reasonable standard of cleanliness. It is satisfactory to be able to report that the great majority of the houses continue to be well kept.

The following table has been prepared to show the number of persons in the families occupying houses in re-housing schemes. The table refers to Germiston Scheme, but may be regarded as typical of other schemes.

TABLE SHOWING THE NUMBER OF PERSONS OCCUPYING 654 HOUSES IN GERMISTON SCHEME.

Number of Persons in Household.	Number of Two Apartments.	Number of Three Apartments.
1	8	1*
2	46	2
3	82	16
4	84	27
5	56	50
6	29	67
7	16	60
8	3	51
9	—	23
10	—	21
11	—	6
12	—	3
13	—	3
Totals,	324	330
Total No. of Persons,	1,272	2,199
Average No. of Persons per Apartment,	1.9	2.2

* Caretaker.

Common Lodging-Houses.—A women's lodging-house, which was in occupation for a long period in Cowcaddens, was closed down during the year, and the premises are in process of being converted to another purpose. It was for long known locally as the "Rat-Pit"—said to be the origin of the title of a well-known book—and had accommodation for 54 lodgers. This brought down the number of common lodging-houses on the register to six, and all of them are for men. They continue to be well conducted, and only a few minor irregularities called for attention. The number of lodgers permitted in these six houses is 1,820, and the number accommodated per night was, approximately, 1,368.

Offensive Trades.—There are now on the register 14 offensive trades—one less than last year—and these are carried on in ten separate establishments. During the summer a breakdown of the plant in connection with a bone boiler's business gave rise to well-founded complaints of offensive smells, but the firm thereafter installed an up-to-date degreasing plant, and no further trouble has arisen. On the whole these businesses were conducted without causing offence. In two of the establishments in which tallow-melting is carried on, the manufacture of edible fat is one of the processes.

Limewashing of Stairs and Closes.—1,892 notices were served from time to time throughout the year, and the required cleansing operations were thereafter carried out. In one case it was found necessary to institute court proceedings against the owner of nine tenement properties in Garngad, and as a result he was fined the sum of £8 3s. 6d.

Cleansing of Storage Cisterns.—Inspection was made of cisterns from which the domestic water-supply is drawn. In many cases they were found in a dirty or otherwise unsatisfactory condition, and notices requiring appropriate action were issued, and in every case complied with.

Workshops.—1,144 inspections were made with reference to 508 workshops and workplaces, and 42 notices were issued with regard to irregularities discovered. Lack of cleanliness was the principle defect to which it was necessary to direct the attention of occupiers, but, generally, the conditions were satisfactory.

Bakehouses.—There are 78 bakehouses on the register, and these were kept under strict supervision. 29 intimations were issued regarding limewashing of premises and cleansing of utensils, and seven with regard to other nuisances.

House-to-house Visitation, &c.—As in previous years a considerable part of the time of the lady inspectors was devoted to the examination of school children suspected of being verminous or dirty. For that purpose 314 visits to schools were made. 4,462 children were examined, and of that number 60 were found to be infested with vermin; 1,328 were slightly verminous; and 472 dirty but not verminous. Examination of the records covering a number of years indicates a steady diminution of the number of children found in school in a verminous condition. Visits were paid to the houses of these neglected children, and, where necessary, steps were taken for the rectification of unsatisfactory conditions.

Routine visitation to houses in selected areas was undertaken; 403 houses were discovered in a dirty condition, and in 112 instances the bedding was dirty. The necessary cleansing of these was secured without recourse to court proceedings.

Sanitary Conveniences.—The following is a statement with regard to the number of common water-closets, privies, &c., as at 31st December, 1931:—

Privies,	179
Earth-closets,	—
Privy Middens,	43
Water-closets serving Two Tenants,	1,555
„ „ Three Tenants,	5,687
„ „ Four Tenants,	2,076
„ „ Five or more Tenants,	472
Dry-closets serving One Tenant,	37
„ „ Two Tenants,	15
„ „ Three Tenants,	6
„ „ Four Tenants,	2
„ „ Five or more Tenants,	—
Privy Middens serving One Tenant,	13
„ „ Two Tenants,	4
„ „ Three Tenants,	6
„ „ Four Tenants,	1
„ „ Five or more Tenants,	19
Ashpits serving Two Tenants,	6
„ Three Tenants,	5
„ Four Tenants,	2
„ Five or more Tenants,	411
Houses without Water-supply or Sink inside—	
One Apartments,	160
Two Apartments,	150
Three or more Apartments,	6
Houses provided with Baths (approximate number), ...	12,479
Total Houses in District,	63,978

Extension of Boundaries.—An extension of the city boundaries, made in terms of the Glasgow Police Act, 1930, added 487 acres to the area of Springburn Ward and 9 to Provan Ward. The added area in Springburn Ward includes Hogganfield Loch, Lethamhill Golf Course, and other lands belonging to the Corporation, which will, no doubt, in time be developed for housing purposes. The Act came into force as from 15th May, 1931.

April, 1932.

J. H. PATTERSON,
Divisional Sanitary Inspector.

EASTERN DIVISION.

Extension of Boundaries.—In accordance with the terms of The Glasgow Corporation Act, 1930, there were added to the Shettleston and Tollcross Ward about 39 acres of land for the purpose of extending the Carntyne Housing Scheme. The land was purely agricultural, and without buildings of any kind.

Nuisances.—The nuisances recorded number 14,435, which is a slight decrease from last year, and in some measure is accounted for by the fact that a large number of uninhabitable houses have been closed or demolished during recent times. The various types of nuisances dealt with are detailed in the Appendix. Appeals for aid

or advice as to the methods which may be adopted to rid houses and business premises of insect pests seem to be on the increase, and consequently before assistance can be given, the life and habits of the particular insect have to be studied. The presence of the cricket on the hearth, though welcomed by a former generation, has now become a subject of complaint. Crickets made their appearance in two new housing schemes after the houses had become occupied. In both instances the houses were recently built on land which for many years had been vacant ground, and the infestations have been confined to certain ground flat houses of the tenement type, the sites of which were, as is the usual practice, paved with asphalt. When the floors of the affected houses were lifted, crickets were seen in the open joints of the brickwork which forms the hearths for the living-room fireplaces. The application of a liberal supply of a specially prepared powder consisting of pyrethrum and sodium fluoride over the entire sites of the affected rooms and over the brickwork of the hearths, compelled the crickets to make frantic efforts to escape by means of the cavity within the external walls, and at the under-floor ventilating gratings. A considerable number were killed, and the remainder escaped. Before the floors were relaid the interstices of the brickwork under the floors were cemented. No further complaints have been made, but a house adjoining was subsequently affected, and it is not yet clear whether the remedy adopted will be permanent.

A number of smoke nuisances from the short chimneys of small workshops situated in the centre ground of large squares of tenements were dealt with, but before action could be taken, observations sometimes for a considerable period, were necessary, particularly when the fires were irregularly used. In the Division there are quite a number of large hollow squares of tenement houses which enclose workshops and other small business premises where the fires are not used in connection with furnaces or boilers, but more as a means of heating an office or similar apartment. There also arises smoke from a tenement washhouse chimney, but so far no one has considered it necessary to complain of the domestic washhouse. As a rule, the offending chimneys were short and unreasonably near dwelling-house windows. The remedial measures taken to avoid further complaint were (1) extending the chimney above the dwelling-house windows; (2) substituting gas for coal; and (3) discontinuing the use of the fire. In one case the occupier of a restaurant gave up his premises, and the landlord agreed that if the premises were let in future it would be on the condition that gas or electricity only be used.

Complaints of smells from many business premises were investigated, and in each case the remedial measures taken proved satisfactory. In this connection observations were taken over a considerable period, in response to an appeal by a number of dwelling-house tenants who were living in the vicinity of a large public work, and who alleged that a periodical discharge of dense brown smoke with a sulphurous odour invaded their houses. The officers' observations proved that the appeal was well-founded, and when the attention of

the works' manager was directed to the nuisance, he at once took steps to remove further cause for complaint. His action has been so far successful.

Several street gully traps which were defective, and were in consequence permitting odours to escape near works and dwelling-houses were replaced by proper traps by the Master of Works. A firm of electrical engineers, occupying premises abutting on the gable wall of a tenement of dwelling-houses, were using a gas-heated stove for the drying of newly varnished armatures. As there was no flue or other means of removing the fumes from the stove to the outer air, the fumes penetrated the gable wall of the tenement and polluted several of the houses. An oven for this purpose, with a suitable vent, could have been provided, but rather than provide such an apparatus, the occupiers of the premises gave up the work of varnishing armatures.

After exceptionally heavy rain, flooding of a fairly extensive nature took place on a low-lying part of the Shettleston and Tollcross district on two occasions during the year, as the result of which the gardens of several houses suffered more or less. The water, however, did not rise to the floor levels, and therefore no damage was done within the houses involved. So that a recurrence of the danger of flooding in this area might be avoided, the work of laying a new 18-inch relief sewer was started, and at the end of the year was nearing completion. The drainage of the division on the whole is good.

Several sections of the Tollcross and Camlachie Burns were cleared of rubbish, principally consisting of garden debris and household refuse. The Tollcross Burn flows through land now occupied by an extensive housing scheme, and is in consequence subject to more pollution of the nature referred to than formerly. In order to direct the attention of those living in the vicinity to the undesirable practice of dumping refuse in the burn, notice boards suitably worded were placed in prominent positions.

Three complaints as to the purity of the dietetic water supply were investigated. In two instances samples of the water were submitted for analysis, but nothing was discovered which would be likely to cause injury to the health of the consumers. Scouring of the water mains by the staff of the Water Department seemed to be all that was necessary to satisfy the complainers.

Housing.—The re-letting of many of the larger types of tenement houses that have been unoccupied for long periods, to which reference has been made in previous reports is still a problem for landlords to overcome. Suburban housing schemes have attracted many of the former tenants of the older tenement houses, whose sanitary and other fittings are not quite so modern. A few landlords, with the object of securing tenants for their unlet houses, have made substantial structural alterations with the consent of the Dean of Guild. These alterations have in each case necessitated a reduction in the number of rooms in the house, but no house has been reduced to less than two

apartments (a room and kitchen), with a bathroom. The following is a brief description of the alterations carried out at three tenements in which the houses had been unoccupied for some considerable time.

(1) The property contained nine houses, eight of which were of three apartments, and one of four apartments. Two three-apartment houses—one on the first flat and the other on the flat above—were reconstructed by sub-dividing in each case a room for the purpose of providing two bathrooms. The result of the alteration was that, while the number of houses in the tenement was not increased, two three-apartment houses were converted to room and kitchen houses with bathrooms; and two three-apartment houses have now bathrooms which they formerly did not have. (2) The property consisted of six three-apartment houses, with a water-closet compartment in each. As the water-closet compartments were next to the kitchen recessed-bed spaces, the latter were taken in as part of the compartments, and baths and washhand basins were provided. (3) The property contained eight houses—four of four-apartments, one of five-apartments, and three of six-apartments. Two of the six-apartment houses had been unoccupied for over a year, and these were subdivided, making four houses of three apartments. By rearranging partition walls in the sub-divided houses, a bathroom in each case was provided. The result of this reconstruction was that the total number of houses in the tenement was increased from eight to ten.

It will be observed that the alterations in (1) and (2) aimed at an improvement in the sanitary accommodation. In the latter case (3), probably the high rentals charged for houses of this kind were the cause of their being vacant so long, and therefore the sub-dividing of the houses would give factors the opportunity of securing tenants who could afford the cheaper rentals.

The number of new houses erected was 946, of which 335 were of two apartments, 549 of three apartments, and 62 of four apartments. Only four of the total number of new houses erected and each of three apartments were built by private builders; the remainder were in housing schemes promoted by the Corporation. The number of dwelling-houses closed or demolished as the outcome of Improvement Schemes or as the result of closing and demolition orders or as dangerous buildings, &c., was 1,062. The number of dwelling-houses converted to business premises was 32.

In a former report a table was given of the number and situation of the "intermediate" houses, with the object of showing to what extent their provision had relieved overcrowding in houses. At that time a large number of the "intermediate" houses in the various schemes had not been completed. Since then the number of such houses has been considerably increased, and the following table gives, among other particulars, the number of overcrowded houses in which overcrowding was reduced by re-housing the tenants thereof in the respective schemes. Three persons per room has been taken as the standard of accommodation. It will be noticed that, of the 890

families re-housed, 244 or 27 per cent. have been relieved of overcrowding. The table further shows that, of the 102 families living in single-apartment houses, 87 (or 85 per cent.) of them were relieved of overcrowding, as compared with the corresponding figures for two-apartment houses, viz., 681 occupying two-apartments, of which 155 were overcrowded, equal to about 22 per cent. The houses (890) vacated by the families re-housed in the various schemes, would permit of a further movement of tenants, some of whom, it is reasonable to assume, would thus find more suitable accommodation for their needs.

Situation of "Intermediate" Housing Schemes.	No. and Size of Occupied Houses in Schemes, Apartments.			No. and Size of Houses Vacated by Tenants now Re-housed in Schemes, Apartments.					No. and Size of Overcrowded Houses reduced by Re-housing in Schemes. Apartments.			
	3	4	Total	1	2	3	4	Total.	1	2	3	Total.
Haghill, ...	318	134	452	29	345	70	8	452	23	81	1	105
Altyre Street, ...	144	12	156	27	121	8	—	156	26	33	—	59
Allan Street, ...	72	18	90	16	71	3	—	90	13	21	—	34
Braidfaulds I., ...	78	12	90	16	67	7	—	90	16	14	1	31
Braidfaulds II., ...	96	6	102	14	77	10	1	102	9	6	—	15
Totals, ...	708	182	890	102	681	98	9	890	87	155	2	244

Calton Improvement Scheme.—The re-housing of the families affected by the operations of this scheme is well advanced. At the close of the year 874 had been closed, and 459 of these had been demolished.

Old Shettleston Road Clearance Area Compulsory Purchase Order Scheme.—This is one of the first clearance schemes promoted in terms of the new Housing (Scotland) Act, 1930, and includes about 131 dwelling-houses, the majority of which are uninhabitable, and a number of small business premises, some of which are in an insanitary condition. Of the 131 houses involved, 50 are single apartments, 73 are of two-apartments, two are of three-apartments, and six are of four-apartments and over. The area represents part of the old Shettleston village, and includes a number of houses of ancient origin.

Re-housing Schemes.—There are now 2,416 houses occupied in re-housing schemes, and all are under the supervision of the Nurse Inspectors. A number of these houses were occupied for the first time during the year. The majority of the houses were found to be well-kept by the tenants, but there is no doubt that the frequent visits of the Nurse Inspectors have been the means of maintaining a reasonable standard of cleanliness. Night inspections were made to several houses at the request of the City Improvements' Department, where lodgers or overcrowding was suspected, and the conditions found were reported to that Department. Some prominence was given in the press to an alleged rat infestation of certain houses in a new re-housing scheme, but when the matter was investigated no evidence of rats was found within any of the houses, and none of the tenants had any complaint to make, except two, who said that they had caught a few mice.

Closing and Demolition Orders.—This form of slum clearance is very suitable for isolated houses, particularly where the sites are small and of little use for the rebuilding of dwelling-houses. In all, 221 houses were dealt with in this way, and of that number 64 houses were closed and 66 were demolished. The remainder (91 houses) are still occupied. According to Section 14 of The Housing (Scotland) Act, 1930, if houses are in any respect unfit for human habitation and cannot be made fit at a reasonable expense, there is no alternative but to proceed by closing or demolition orders, unless they can be included in a clearance area. A drawback arising out of this procedure is the difficulty of the affected tenants obtaining other accommodation within a reasonable time of the orders becoming operative.

Rent Restrictions Acts.—The applications for certificates by tenants of dwelling-houses in respect of disrepair or uninhabitability numbered 162, and two applications for reports on houses in which certain works had been carried out were made by landlords. All the tenants' applications, with the exception of four, were granted, and these applied chiefly to houses that had been included in clearance schemes. One landlord was refused a report, as practically nothing had been done to remedy the defects in the house in question.

Ticketed Houses.—There are 2,846 ticketed houses, being a reduction of 909 since the previous year. The reduction is due to the removal of slum property. Of the houses inspected, 223 were overcrowded. In two of the worst cases of overcrowding there were only 157 and 155 cubic feet respectively per adult person, instead of 400 cubic feet.

Farmed-Out Houses.—The number of farmed-out houses has also been reduced by slum clearance activities. There are now 123, compared with 205 in the previous year. They have been regularly inspected for the purpose of enforcing the bye-laws regulating such houses, and minor contraventions, when brought to the notice of the keepers, have received prompt attention.

Common Lodging Houses.—No overcrowding was discovered, and all the houses were found clean and well conducted. Minor defects of fittings were all attended to by the keepers. There are 11 common lodging houses, six of which are for males and five for females.

Tents and Vans Used for Human Habitation.—In terms of Section 33 of The Glasgow Corporation Order, 1929, five applications were made to occupy land for the accommodation of tents, vans, sheds, or similar structures used or intended to be used for human habitation. In each case it was proposed to accommodate one habitable van, and all received the necessary consent from the Corporation for the period of one year, on certain conditions, such as the situation of the van and other sanitary matters. The occupier of the ground at 843 Gallowgate, where an average of 48 vans have been accommodated during the year, obtained consent from the Sheriff, to whom he had

appealed against the decision of the Corporation in the year 1930, to use the ground in question for this purpose. As the result of his successful appeal to the Sheriff, it would appear that he does not require to apply annually like the others, to whom consent has been given conditionally and from year to year. Towards the end of the year a great number of travelling showmen arrived in the city for the Christmas Show at the Kelvin Hall, and, as no accommodation for their living-vans was available at the Gallowgate ground, which is the largest parking place in the city for such vans, other yards had to be found where there were suitable sanitary fittings. The provisions of the bye-laws as to spacing of living-vans have in every case been insisted upon. Court proceedings had to be taken against eleven persons for using ground for the accommodation of vans used for human habitation without the consent of the Corporation and as provided for by Section 33 of The Corporation Order, 1929. Six of the accused were fined £2, with the alternative of ten days' imprisonment. One was fined 20s., or ten days' imprisonment. Warrants were granted for the apprehension of two who failed to appear in court, and in the cases of the remaining two the diets were deserted "pro loco." All the accused removed outwith the city, or gave up this type of housing.

Offensive Trades.—Two applications were made in terms of Section 32 of The Public Health (Scotland) Act, 1897, for sanction to establish offensive trades. One was for the business of a soap boiler, which was granted, and the other, which was refused, was for the business of tallow melting. The applicants in the latter case appealed to the Department of Health for Scotland against the Corporation's decision, and while the appeal has been heard the result has not yet been made known.

The business of tallow melting has a long association with the east end of Glasgow, and quite a number of people make inquiries about setting up establishments, but are deterred by the procedure to be followed. All the nuisances found in connection with the offensive trades were removed without undue delay. Occasionally defects in plant occur in establishments which are otherwise well conducted, such as leaking effluvia pipes and "wet pots." The latter are difficult to avoid, and the resultant nuisance is fortunately of short duration. "Wet pots" are the result of leaking steam heating coils within digesters. The escaping steam mixes with the bones in the process of degreasing, and when a solvent is used for that process it becomes necessary to withdraw the steaming bones on to the floor, so that the defect may be repaired. The steaming bones give off a smell until they cool. The freshness of the bones and fats dealt with in the various works throughout the year has been remarkably good. The offensive trades number 43, allocated as follows:—Bone Boilers, 6; Gut Cleaners, 3; Glue and Size Manufacturers, 1; Hide and Skin Factors, 4; Manure Manufacturers, 5; Soap Boilers, 4; Tallow Melters, 15; Tanners, 5.

Workshops, Workplaces and Schools.—The workshops and workplaces in the division were visited periodically, and where the need for cleansing was required suitable action was taken to enforce it. As for the provision of water-closet accommodation for the use of workers and the abatement of nuisances, particulars are given in the Appendix. All the schools, numbering 51, were inspected, particularly with regard to the sanitary arrangements, which were found in good order. Of the 51 schools visited, nine are provided with trough water-closets for the use of the scholars; the remainder of the schools have the more modern "washdown" pattern. A suspicious outbreak of illness among the inmates of an industrial school, which ultimately was diagnosed as gastric and respiratory influenza, was considered a sufficient reason for smoke-testing the drains and plumberwork of the institution. As a result of the test several defects were discovered in the drains and plumberwork, and these were immediately remedied by those responsible.

Bakehouses.—The bakehouses were visited regularly, and 36 notices were issued for the limewashing, &c., of the walls and ceilings of such premises. Ten notices relating to other nuisances were also issued, and all were attended to.

Homeworkers.—The houses of the 67 homeworkers on the register were visited on 327 occasions, and at all times were found clean and tidy.

Piggeries.—There are eight piggeries, two of which are in connection with institutions, and all, with one exception, are situated in a rural part of the city and near to the county boundary. The majority appear to be kept in good condition, and in cases where it was necessary to call for improvements these were promptly attended to.

Burial Grounds.—Frequent visits were paid to these grounds, and in no case was a breach of the bye-laws discovered.

Cleansing of Closes, Stairs, &c.—The great majority of the tenants in rehousing schemes are sweeping and washing the closes and stairs in accordance with the bye-laws. In one particular re-housing scheme, however, it was considered necessary to apply more vigilance, and, after two defaulters had been fined in the Police Court for neglecting this very necessary duty, a marked improvement was observed. Rotation cards (numbering 1,955) were served on tenants throughout the division so that there would be no confusion as to the dates on which their respective turns of sweeping and washing the stairs, &c., became due. Court proceedings were taken in five instances, and all were successful, the fines amounting to 12s. 6d.

Limewashing.—Notices numbering 2,192 were served on landlords for the limewashing of close and staircase walls, and all were attended to.

SANITARY CONVENIENCES USED IN COMMON BY TENANTS OF
DWELLING-HOUSES.

Nature of Convenience.	Number of Tenants served.					Totals.
	1	2	3	4	5 or more.	
Water-closets,	—	1,330	6,409	1,933	331	10,003
Sinks and water supplies outwith dwelling-houses,	174	91	12	—	—	277
Dry closets,	4	2	—	—	—	6
Privy middens,	—	—	—	—	—	—
Ashpits,	—	—	1	1	178	180

General.—Details of the various operations are given in Appendix Table 23.

A. STIRLING,
Divisional Sanitary Inspector.

18th March, 1932.

SOUTH-EASTERN DIVISION.

Nuisances.—6,781 nuisances were removed or abated during the year. The details of these will be found in the Appendix.

Reference here, in some detail, to the following case which resulted in a special inquiry being held to investigate persistent complaints of smoke pollution may be of interest.

About three years ago complaint was received with reference to smoke discharged from the chimneys of a cabinetmaker's factory situated in a "hollow square" formed by dwelling-houses of the tenement type, four storeys in height. The factory is only two storeys high and the chimneys complained of are small and low, so that smoke was discharged at a lower level than the windows of the dwelling-houses on the upper flats of the surrounding tenements. These chimneys were from small open fires used only for heating the glue pots in connection with the business, and the fuel used was wood chips. Smoke issued from the chimneys intermittently and only in small puffs varying in volume and density, and was almost immediately dispersed in the atmosphere, before it could reach the windows of dwelling-houses, the nearest of which was about 30 feet distant. Repeated and intensive observations, over a long period and at different times of the day, failed to produce evidence sufficient to justify action under the Public Health Act or the Local Police Acts. Later, complaints became more insistent, and ultimately at the request of the complainers the Department of Health for Scotland ordered a special inquiry by a Commissioner to be held.

This inquiry took place on 25th and 26th March, 1931, and the Commissioner, after hearing detailed evidence and inspecting the factory, found that the smoke complained of "has not been of such a character or quantity as to be a nuisance or injurious or dangerous to health within the meaning of Section 16 (10) of the Public Health (Scotland) Act, 1897." There is little doubt that the smoke was at

times annoying, if not an actual nuisance under the Act, and it should be possible to take exception to the issue of any smoke no matter how slight in volume or density in any such confined situation, and there should be no necessity to prove that a nuisance within the meaning of the Public Health Act exists. Consideration was given to the following clause in Section 85 of the Glasgow Building Regulations Act, 1900, with a view to possible action thereunder, "The Dean of Guild may, on the application of any person interested, require any chimney stalk or flue (new or existing) connected with any such furnace (*i.e.*, of a steam boiler or other furnace for commercial or manufacturing purposes) to be carried up to a height sufficient to carry off the products of combustion without offence to the occupants of neighbouring buildings."

The point raised here was whether the Medical Officer of Health or Sanitary Inspector could be held to be "persons interested," and the legal opinion obtained was that they could be so held, but that they would require to satisfy the Dean of Guild that a nuisance existed, and as that could not be done on the evidence obtained, action under this section of the Act would not be warranted. It will also be noted that the clause quoted is limited in its application to "chimneys connected with the furnace of a steam boiler or other furnace for commercial or manufacturing purposes."

A somewhat similar complaint from another part of the Division was also investigated, but in this case there was no question about the existence of a very objectionable nuisance. The complaint was of the issue of an oily smoke from the chimney connected with an oil engine in a sculptor's yard in close proximity to the windows of dwelling-houses. The owner of the yard was at once called upon to take measures to prevent the nuisance, and after various experiments the chimney was ultimately extended some distance away from the dwelling-houses and was fitted with a condenser. This arrangement has now been in operation for some time and is proving quite effective.

In view of these considerations the Health Committee have agreed to recommend that there be included in the next Provisional Order to be promoted by the Corporation a clause enabling the Corporation to require that all chimneys shall be built or raised to such a height as to obviate any nuisance or annoyance arising from the emission therefrom of smoke, fumes, or particles of grit, to houses or other property situated within 100 feet thereof.

Another complaint entailing considerable investigation had reference to smells of petrol and petrol fumes and to noise causing annoyance to the residents in the vicinity of a Corporation Omnibus Depot. The complainers alleged that the smells of petrol and fumes from omnibuses being refuelled and tested in the open yard of the depot at night time and in the early morning penetrated to the bedrooms, while the back-firing of the motor-engines and the noise arising from the work carried on in the depot were so disturbing as to prevent sleep. They also complained that the omnibuses were swept out and

cleaned in the open yard and that the dust arising therefrom was blown into their houses. Very elaborate investigations were made, as the result of which it was decided that no nuisance from smells could be found to exist, that while there were noises inseparable from the conduct of the depot, they were not excessive or likely to cause undue disturbance, and that complaints of dust were not substantiated.

HOUSING.

Housing (Scotland) Act, 1930.—Official representations in terms of Section 16 of the Act were made with reference to 70 uninhabitable houses. On 62 of these demolition orders were made. The owners of five others undertook to make them habitable and the necessary alterations and improvements were subsequently carried out. In the remaining three cases the owners gave undertakings that the houses would not be used for human habitation. Of the 62 houses upon which demolition orders were made, 23 have now been demolished, and 15 have been closed. Of the latter nine cannot be demolished because they form part of buildings containing other houses which are habitable. 24 of the houses were still occupied at the end of the year.

Only 18 of the actual families, comprising 92 persons, displaced from houses on which demolition orders were made were re-housed by the Corporation, the other 20 families, comprising 66 persons, finding accommodation elsewhere.

One house was also officially represented in terms of Section 14 of the Act, and as a result the owners were called upon by notice to execute such works as would render the house fit for human habitation. Although the owners were quite prepared to carry out the work at once, there was unavoidable delay owing to the difficulty of finding temporary accommodation for the tenant and consequently the work could not be gone on with before the end of the year.

In addition to the foregoing, two properties (89 Bedford Street, containing 13 houses, and 21 Surrey Street, containing six houses) were demolished by order of the Dean of Guild, as they had become dangerous buildings. Other three properties (Inglefield House, containing eight houses, 1 Charlotte Place, containing 15 houses, and 17 Hospital Street, containing 16 houses) were demolished by the owners for the purpose of extending adjoining business premises. With the exception of those at Inglefield, all these houses were listed as uninhabitable and would ultimately have been dealt with under the Housing Act.

New Houses.—957 new houses were occupied during the year. Of these 356 were of the "intermediate" class, 248 being of three apartments and 108 of four apartments. 601 built by private enterprise consisted of 13 of three apartments, 443 of four apartments, and 145 of five or more apartments.

Rent Restrictions Acts.—Only one application for a certificate under these Acts was received during the year, and this was granted.

Re-housing Schemes.—These schemes, of which there are three in the Division, were again kept under supervision by the nurse inspectors. At the Polmadie Scheme the less satisfactory tenants have hitherto been slow to respond to the influences tending towards a higher standard of cleanliness. It is satisfactory, therefore, to note that this year there has been a marked improvement. At the beginning of the year, while only one tenant was classed as really "dirty," there were other 43 unsatisfactory. The former tenant is now maintaining a higher standard. Of the 43 unsatisfactory tenants, 12 have reached and are maintaining the "clean" standard, while 22 have improved, though not sufficiently to reach the higher standard. The remaining nine unsatisfactory tenants have removed—three being ejected for non-payment of rent, four removing for other reasons, and two being transferred to other schemes. There were other 88 tenants (all in the "clean" category) at the beginning of the year, but four of these removed and one was transferred to another scheme. Those remaining still maintain a high standard of cleanliness. 14 new tenants (all "clean") came into the scheme to replace those who removed, and the classification now is 109 "clean," and 23 "fair"—a total of 132 tenants.

Ever since its inception a much higher standard of cleanliness has been maintained at the McNeil Street Scheme. At the beginning of the year the classification of the tenants was 171 "clean," eight "fair," and one dirty. Only one of the "clean" tenants failed to maintain that standard and fell to the "fair" category. Three had to be ejected for non-payment of rent, and eight removed for other reasons. Of the eight tenants in the "fair" category, five improved so much as to be classed as "clean," one removed out of the scheme, and the remaining two are still only "fair." 13 new tenants came into the scheme during the year, and of these only one is not maintaining the highest standard and has been classed as "fair" only. The final classification is thus 176 "clean" and four "fair"—a total of 180 tenants.

The Govanhill Re-housing Scheme is larger than the two already referred to, containing as it does 288 houses. Three of the houses were unoccupied at the beginning of the year. Of the occupied houses 275 were "clean" and 10 "fair." Eight of the "clean" tenants lapsed during the year to the "fair" category; four were ejected for non-payment of rent; 10 removed for other reasons; and one was transferred to another scheme. One of the tenants who began the year in the "fair" class improved sufficiently to be raised to "clean," but one had to be ejected for non-payment of rent, and other two removed for other reasons. 21 new tenants came into the scheme during the year, and these are also in the "clean" category, so that the classification now is 274 "clean" and 14 "fair."

Bug Infestation.—The furniture, bedding, &c., of 14 tenants about to remove to re-housing schemes were disinfested of bugs, while 51 houses in schemes which had become infested were also treated.

Drainage.—The smoke-test was applied on 70 occasions to the drainage systems of old properties. Defects were revealed at 18 of these premises, entailing overhauling or repairing of the drains or plumberwork. The test was also applied on 2,544 occasions at new buildings. The new section for paying patients at the Victoria Infirmary was opened in April. The drainage system of this section was kept entirely separate from the system of the main buildings, and opportunity was taken to have the older system modernised—internal soilpipes being removed and new ones fitted up outside, and all the sanitary fittings being renewed. The drainage and conveniences at the new Nurses' Recreation Hall at the Samaritan Hospital, the new Children's Playground at Govanhill Street, and the extension to the Corporation Transport Department's Garage at Coplawhill were also tested.

Water-Closets.—There has been a reduction of 27 water-closets used in common by two or more tenants, the total now being 5,840, and of these 1,033 serve two tenants, 3,159 serve three tenants, 1,287 serve four tenants, and 361 serve five or more tenants. *Sinks.*—There are now 119 one-apartment and 78 two-apartment houses without inside sink accommodation, as compared with 123 and 80 respectively last year. *Baths.*—There are approximately 22,698 houses provided with baths, as compared with 21,741 last year, the increase being due to the new houses erected during the year. *Water-Closets for Shops.*—Water-closet accommodation was provided for the employees in 25 shops where inadequate accommodation was found to exist. *Water Storage Cisterns.*—445 inspections of cisterns resulted in 137 being found dirty or improperly covered and inadequately ventilated. Immediate action was taken to have these put in proper order.

Farmed-Out Houses.—In connection with the court proceedings referred to in last year's Annual Report, and which were pending at the end of the year, the result was that the keeper gave up the houses—44 in all—and there are now no farmed-out houses in the Division. *Common Lodging Houses.*—These houses, of which there are two, both for males, were kept under regular supervision, 18 day visits and four night visits being paid. Five minor contraventions of the bye-laws were dealt with. *Ticketed Houses.*—3,134 night visits were paid to ticketed houses, 234 of which were overcrowded.

Workshops and Workplaces.—There are now 502 of these premises on the register. Visits of inspection to the number of 1,455 were paid, and in 21 instances the occupiers were notified with reference to lack of cleanliness. Defective sanitary conveniences at six workshops were also dealt with. *Bakehouses.*—There are 44 factory and 63 other bakehouses in this Division, and these were visited regularly, 460

inspections being made. In 20 cases nuisances of a minor nature were discovered and remedied. *Outworkers*.—78 visits were paid to the homes of out-workers, of which there are now only 46 on the register. All were found clean.

Cleansing of Closes, Stairs, &c.—912 cards were served on tenants showing their turns, in weekly rotation, for the washing and sweeping of closes, stairs, and water-closets. In only four cases did tenants persist in their refusal to carry out the necessary cleansing, and against these court proceedings were instituted, resulting in one being admonished, one being fined 2s. 6d., and two being fined 10s. 6d. each. *Limewashings*.—The owners of 772 properties were notified to lime-wash the walls of the common closes and staircases, and the necessary work was carried out.

Verminous and Dirty Children.—487 visits were paid to schools by the nurse inspectors, and 6,480 children were examined. The parents of 917 children found in a dirty or verminous condition were notified to have the children cleaned, and in 71 cases the homes were in a dirty condition. In 81 the bedding was found to be dirty. The necessary cleansing was subsequently carried out. *House-to-House Visitation*.—In connection with this work, 9,667 visits were paid. 131 dirty houses and 86 dirty beddings were discovered and the tenants dealt with. In only one of these cases was it necessary to resort to court proceedings—a fine of £2 being imposed.

Back Courts.—The littering of back courts and the objectionable practice of throwing refuse from windows still persist. The culprits are difficult to detect, but in one case the inspectors were successful in getting evidence to warrant court proceedings, and a fine of 5s. was imposed.

Rat Infestation.—Action was taken for the extermination of rats at all infested properties immediately the presence of the vermin became known. Prior to “Rat Week” circulars were issued to the occupiers of all premises likely to harbour rats asking that special efforts be made during that week to exterminate the vermin, and as a result it is known that 225 rats were killed, while of course many more, although untraced, must have been exterminated. *Fly Nuisance*.—To minimise this nuisance efforts were again made to reduce the number of flies by attacking them in their breeding quarters. Arrangements were therefore made to have all stable dungpits regularly cleaned out and sprayed during the summer months.

General.—The other routine work of the inspectors does not call for special comment, but details thereof will be found in the tables.

DUNCAN THOMSON,
Divisional Sanitary Inspector.

May, 1932.

SOUTH-WESTERN DIVISION.

The sanitary condition of the Division has been maintained, and steady, if slow, improvement continues. During the year under review the number of uninhabitable houses closed is equal to a reduction of one-sixth of the total houses on the official list of uninhabitable houses in the Division; owners have commenced to sub-divide into more and smaller houses with all modern amenities, empty houses too large to command occupancy in their original size and lacking these facilities, and the re-conditioning of agricultural workers' houses, consequent on the grant of financial assistance, is proceeding. Overcrowding, though still very prevalent, shows some slight signs of easing off in respect to the number of cases, but not as regards its intensity. Nuisances are as numerous as formerly, though few are of a serious nature; reference is made to a nuisance caused by dry rot in a house. The number of privies (at premises remote from sewers) shows a slight decrease, with a corresponding increase in the number of new (additional) water-closets; water-closets used in common by two or more families declined collaterally with slum clearance; ash pits used in common show no change; and houses without water and sinks inside remain at the low figure (9) of last year. All tenement property is provided with water-closet accommodation. A proposal by a firm to be allowed to adapt an unoccupied factory for the conversion therein of fish offal into fish meal and fish cakes by a new process, claimed to have been satisfactorily demonstrated in the laboratory, but not hitherto tried on a commercial scale, on being viewed with official disfavour, was ultimately dropped.

A recent noteworthy departure in social life has been the spontaneous formation of social clubs, instituted primarily for the promotion and furtherance of social intercourse, during the daytime as well as in the evening, among unemployed lads, whose usual meeting-places hitherto had been the street corners. Groups of unemployed young men have rented premises, empty shops as a rule, and in the Govan area, where the movement originated (it is now spreading farther afield), over a score of clubs, with from a dozen to one hundred and fifty members each, have been formed. The movement, a voluntary one, and a legacy of the continued unemployment, is sponsored by prominent local citizens. Frequently this Department has been consulted by club members for advice as to the provision of additional sanitary conveniences, and in offering guidance on this and other cognate matters it has been recognised that a too literal interpretation of official regulations might tend to unduly embarrass a new movement, the power of which for good is fraught with such possibilities, and the essence of the full development of which is a very large measure of freedom of action.

General references to the various branches of the work which, as formerly, is carried out in accordance with the latest practice, are shown herein under appropriate headings; details are noted in the Appendix (Table XXIII).

Nuisances.—168,975 inspections were made, resulting in the discovery of 17,450 nuisances, and the removal or abatement of 17,564 complaints, compared with 165,686 inspections in the previous year, when 16,350 nuisances were recorded and 16,285 were removed.

Observations were continued at the commercial undertaking and at the public utility works, both of which were noted in the two previous years' reports, as contributing unduly to atmospheric pollution. At the former the improvement already recorded was maintained during the year. At the latter methods of dealing effectively with the complaint are still in the experimental stage.

Dry-rot in a self-contained house necessitated its temporary closure, to allow of the execution of the extensive remedial measures adopted to restore it to a condition fit for human habitation. The house referred to consisted of two flats, with a single-storey offshoot or annexe to the back comprising a maid's bedroom, billiard-room and water-closet. It had been in the possession of the present tenant for about two years, prior to which it had lain unoccupied for some time. The rot had secured a wide-spread hold, extensive fungoid growth showing in the annexe and in the service pantry and dining-room on the ground floor and in the bathroom on the upper floor. Apparently the decay had its source in the annexe, where cushions of fungus adhered to the door lintels and standards, and where the mouldy, sickly odour associated with the vigorous growth of the fungi of dry rot was readily distinguished. The timber of all the apartments indicated was in great part disintegrated and reduced to a friable condition. Measures, necessarily drastic and costly, were instituted to eradicate the growth and remove the conditions which favoured its spread, and it was only in course of these that the full extent of the damage was revealed. The fungus was found to have spread under the plaster over the surfaces of the walls from the floors to the ceilings, and in many places to have penetrated through the mortar joints of the brick partition walls from one apartment to another. In the case of one room, where the window was weather-bound, the fungus was thickly entwined around the iron weights of the sashes with its tendrils spreading upwards along the sash cords. Included in the remedial measures adopted were the provision of sub-soil drainage in connection with the annexe the excavating and asphaltting of the solum of one of the apartments, the provision of a free air space under the floor, the stripping of all affected woodwork and plaster, and the washing down with crude carbolic acid of the exposed surfaces of the walls after these had, in the first instance, been effectively cleansed with a wire brush. All new woodwork was protected with creosote prior to use, and every precaution taken in the disposal of old material which carried the spore of the fungus.

Drainage.—House drainage generally is satisfactory. The drainage bye-laws, however, are in need of revision in order to meet approved modern methods and practice. Consequent on the laying of the new intercepting sewer in the Cardonald area (as agreed upon at the passing of the Boundaries Act, 1925), a sewage pumping station, the cause of

complaint in warm weather, has been abolished, the sewage formerly pumped being now discharged directly into the new sewer. An obsolete sewage purification plant, also a source of annoyance at times, falls to be dismantled on the completion of an extension of this sewer now in progress.

Sanitary Accommodation.—(i) *Water-Closets used in Common.*—Water-closets used in common total 4,380, a decrease of 31, compared with the previous year: the numbers serving 2, 3, 4 and 5 or more tenants are 1,003, 1,882, 1,144 and 351 respectively. (ii) *Houses without Water Supply and Sink inside the House.*—The number of houses without water and sinks inside at the end of the year is 9, the same as in the preceding year. Six houses (unfit for human habitation and earmarked for demolition) get their water supply from Kennedy “wells” in their immediate vicinity, and 2 houses, which were similarly supplied, are being re-conditioned under the Housing (Rural Workers) Acts, the improvements including the introduction of a water supply and sink inside each house. The remaining house, remote from gravitation supplies, gets its water from a shallow well properly protected against pollution. This well is at some distance from the house, and during the year the suction pipe was extended, and a new lift and force pump was installed at a point which ensures the water being brought practically to the back door of the house. (iii) (a) *Dry Closets*, (b) *Privy-Middens* and (c) *Ashpits.*—(a) Dry closets number 39, being 3 fewer than in the previous year. Of the total, 15 are in factories without sewerage facilities and 16 at isolated houses remote from sewers. Of those used in common (6), 4 serve two tenants and one serves 3 tenants and 4 tenants each respectively. A pan privy was replaced by an earth-closet (the only one in the Division) at the house referred to in the preceding sub-heading as having a shallow well for its water supply, (b) *Privy-middens* again number 7, and all are at isolated buildings. Of those which are common (3), two serve 2 tenants each and one serves 4 tenants. (c) *Ashpits* remain practically as last year, the numbers serving 2, 3, 4 and 5 or more tenants being 10, 1, 10 and 1,456 respectively, a total of 1,477 compared with 1,478 in the previous year.

Common Lodging Houses.—There are on the register 4 “model” lodging houses and a Sailors’ Home; the available sleeping accommodation greatly exceeds the demand. Their condition remains good. In a common lodging house notice was given to the keeper that the fire escape stair was not receiving the attention it required. The cause of complaint was removed. Negotiations were carried through for the renewal of the sanitary accommodation at a common lodging house, and this work is expected to begin early next year.

Farmed-Out Houses.—The registration of the twelve farmed-out houses was renewed during the year. They have been frequently inspected and strict compliance with the bye-laws insisted upon. Though changes of sub-tenancies have been frequent, the houses have been almost fully occupied during the year.

Ticketed Houses.—The decline in the number of ticketed houses (due to slum clearance) continues, there being 1,196 on the register, as compared with 1,325 in 1930; the proportion found overcrowded is 9·2 per cent., as against 11·5 per cent. last year. The number of families removed from overcrowded ticketed houses during the year, in the ordinary course of events, that is, without official compulsion, was 31, compared with 47 in the previous year. The majority of these were not traced to their new abodes; a few went into lodgings and 7 are known to have gone to larger (privately-owned) houses and 4 to larger (Corporation) houses. The new cases of overcrowding number 22, compared with 33 last year; included in these are 6 families from various addresses who moved to one tenement erroneously rumoured to have been the subject of a demolition order, in misplaced anticipation of thus obtaining houses provided by the Corporation for tenants displaced from houses unfit for human habitation. Although there is an actual decrease in the number of cases, the intensity of the overcrowding is not relatively diminished, there being still many houses of one apartment with from 5 to 10 inmates each, and of two-apartments with from 8 to 11 inmates each.

Schools, Factories and Workshops.—The schools continue satisfactory. Workshops and some factories (principally bakehouses) are regularly inspected, and beyond the need for calling upon some of the occupiers to carry out the statutory limewashing of the walls and ceilings, and to rectify a few nuisances of a minor nature, there is nothing to report.

HOUSING.

New Houses.—In the Cardonald, Crookston and Pollokshields districts 30 bungalows and semi-detached houses were built by private enterprise, as compared with 31 in the previous year, and 174 houses of three and four apartments were erected by the Corporation in the Torbreck Housing Scheme.

Sub-division of Houses.—Nine houses of 5, 6 and 7 apartments, which had remained unoccupied for some time were sub-divided and converted into 16 houses of three apartments each. The houses resulting from the sub-division have through ventilation, and included in the other essentials are the provision of a separate water-closet, bath, hot-water installation, larder and adequate press and coal storage accommodation in each house. The framing of bye-laws under the Housing Act for the better control of the sub-division of houses and the provision of amenities therein, is actively engaging the attention of the Local Authority.

Housing (Rural Workers) Acts, 1926-1931.—The modernising of three farm cottages is proceeding, financial assistance for this work having been granted to the owner under the Scheme made by the Corporation.

Repair of Houses.—Notices under Section 14 of the Housing Act, 1930, regarding 36 houses which were in disrepair and capable at a reasonable expense of being rendered fit for human habitation, were complied with. In addition, intimations under Section 19 of the Public Health Act, 1897, regarding disrepair or dampness in 2,508 houses received attention.

Slum Clearance.—Closing and Demolition of Houses.—112 houses were closed and demolished either on account of orders under the Housing Act, 1930 for the demolition of houses unfit for human habitation or because of the action of the Dean of Guild Court under the Glasgow Building Regulations Act, 1900, against “dangerous buildings” (also unfit for human habitation). Those of the tenants who wished it, and they constituted the majority of those displaced, were re-housed by the Corporation. Five houses earmarked as uninhabitable having become vacant because the terms of re-letting could not be said to include the implied condition that a house at the commencement of the tenancy must be in all respects reasonably fit for human habitation, they were closed permanently by the owners.

Re-housing.—(a) Improvement Scheme.—Whitefield Road Re-housing Scheme. The houses (114) continue to be regularly and frequently inspected, and at the end of the year 113 fell to be recorded as clean and one as fair, compared with 111 clean and 3 fair in the previous year. The three recorded as fair last year removed during 1931; the three incoming tenants were clean and remained so during the year. One tenant recorded as clean in 1930 declined to fair in the current year. Four tenants who transferred within the Scheme during the year were in the clean category and remained so during the course of the year. *(b) Intermediate Housing Schemes.*—The houses in the Brand Street (156) and Crossloan Road (60) Schemes continue to be well kept; they call for no comment.

Rent (Restrictions) Acts.—34 applications for certificates were granted.

Overcrowding.—This was dealt with at length in last year’s report; no further details are submitted meantime.

Offensive Trades.—There is no change either in the number or nature of the businesses carried on. In the premises referred to in last year’s report as having been not quite satisfactory an improvement falls to be recorded.

Early in the year a proposal was made with a view to setting up and carrying on the conversion of raw fish offal into fish meal (to be used for poultry, pig and cattle food), in a building formerly a shirt factory situated in the middle of a populous industrial district, by a new method—the Lavender process, so called after its inventor. The intention was to collect fish offal, to the amount of ten tons daily, from the local fishmongers’ shops, and deposit it in the factory where it would be sorted and thereafter placed in hermetically sealed

chambers to undergo deodorisation and dehydration. It was stated that this method had been tried out experimentally, and it was admitted that it had not been attempted on a commercial scale. The promoters, in order, it was understood, to forestall trade competitors, were most anxious that the proposed new industry should begin right away. Apart altogether from the merits of the new process, it was obvious from the design and location of the building in which it was proposed to carry on the business, and from the manner in which it was intended to handle the offal on arrival there, that nuisance could not be avoided. When it became known that the official attitude was unfavourable, the project was abandoned. In view, however, of the possibility of work of this or a similar nature being commenced without permission being sought, it was deemed prudent to have the business of the utilisation of fish offal declared an offensive business within the meaning of the Public Health Act, and accordingly the Corporation made an Order, which was duly confirmed, declaring the business of manufacturing of fish manure or fish meal or other like substance manufactured from fish or fish offal to be an offensive business for the purposes of Section 32 of the Public Health (Scotland) Act, 1897. No further request has been made to set up a business of this kind.

Rat Destruction.—Rat extermination is a matter of daily routine and the activities observed during Rat Week give an added interest to this work, when a special survey of all premises likely to be rat-infested is made and instructions issued with a view to concerted action being taken at that time under the general supervision of the officers.

Burial Grounds.—The condition of the three cemeteries continues satisfactory. Craigton and Cardonald cemeteries, both of which are large in area and more than ample for present requirements, have been frequently visited and on all occasions the bye-laws were found to be complied with. Govan Churchyard is practically closed, the right of burial being reserved to a very few lairholders; during the year two interments, after due verification of the right to burial, took place.

General.—Included in the routine work were the taking of measures for the prevention of infectious disease and visits to all houses in which deaths occurred, the enforcement of the Police Acts regarding the limewashing of closes and staircases, and the sweeping and washing of closes and stairs, house-to-house visitation in certain localities to ensure the cleansing of the houses and clothing therein, inspection of dirty school children, the oversight of places of public entertainment with respect to their general cleanliness, the inspection of showmen's tents and vans, the suppression of flies at stable dungpits, the inspection of piggeries, the notification to other municipal departments of defects calling for their attention and the paying of prompt attention to all complaints, oral or written, received. Details of these operations, none of which calls for comment, will be found in the Appendix (Table XXIII.).

JAMES REID,
Divisional Sanitary Inspector.

16th March, 1932.

APPENDIX.

TABLE I.—GLASGOW, 1931.—POPULATION AS AT THE CENSUS IN EACH MUNICIPAL WARD, ACREAGE, AND PERSONS PER ACRE.

MUNICIPAL WARDS.	POPULATION.				Acreage.	Persons per acre (including Institutions and Shipping.)
	Without Institutions and Shipping.	Insti- tutions.	Shipping.	Total.		
1. Shettleston and Tollcross, ...	39,766	103	—	39,869	1,022	39
2. Parkhead, ...	38,070	1,348	—	39,418	883	45
3. Dalmarnock, ...	35,801	23	—	35,824	288	124
4. Calton, ...	32,395	1,994	—	34,389	333	103
5. Mile-end, ...	21,393	37	—	21,430	191	112
6. Whitevale, ...	22,185	254	—	22,439	176	127
7. Dennistoun, ...	25,235	325	—	25,560	280	91
8. Provan, ...	40,998	790	—	41,788	1,284	33
9. Cowlairs, ...	20,792	1,720	—	22,512	456	49
10. Springburn, ...	22,744	2,803	—	25,547	2,261	11
11. Townhead, ...	25,724	1,652	—	27,376	175	156
12. Exchange, ...	14,037	2,479	7	16,523	289	57
13. Blythswood, ...	11,381	2,313	11	13,705	242	57
14. Anderston, ...	25,117	986	806	26,909	422	64
15. Sandyford, ...	19,743	489	—	20,232	152	133
16. Park, ...	20,502	225	—	20,727	272	76
17. Cowcaddens, ...	34,983	739	1	35,723	488	73
18. Woodside, ...	32,178	894	—	33,072	170	195
19. Ruchill, ...	40,032	1,209	2	41,243	1,766	23
20. North Kelvin, ...	20,979	50	—	21,029	146	144
21. Maryhill, ...	24,362	1,158	4	25,524	1,391	18
22. Kelvinside, ...	22,211	1,137	—	23,348	1,127	21
23. Partick (East), ...	27,436	1,105	—	28,541	268	106
24. „ (West), ...	23,531	76	123	23,730	357	66
25. Whiteinch, ...	55,450	967	13	56,430	2,696	21
26. Hutchesontown, ...	38,823	28	—	38,851	389	100
27. Gorbals, ...	46,166	665	—	46,831	252	186
28. Kingston, ...	29,991	182	163	30,336	285	106
29. Kinning Park, ...	35,051	467	245	35,763	379	94
30. Govan, ...	35,618	351	—	35,969	529	68
31. Fairfield, ...	30,281	1,803	104	32,188	1,402	23
32. Pollokshields, ...	27,022	1,820	—	28,842	4,678	6
33. Camphill, ...	18,933	74	—	19,007	366	52
34. Pollokshaws, ...	21,171	—	—	21,171	1,847	11
35. Govanhill, ...	32,269	245	—	32,514	365	89
36. Langside, ...	17,173	807	—	17,980	557	32
37. Cathcart, ...	26,121	—	—	26,121	1,327	20
CITY, ...	1,055,644	31,318	1,479	1,088,461	29,511	37

TABLE II.—GLASGOW, 1931.—INHABITED AND UNOCCUPIED HOUSES
IN EACH MUNICIPAL WARD.

MUNICIPAL WARDS.	INHABITED HOUSES.*				Empty Houses.
	1931.	1930.	Decrease.	Increase.	
1. Shettleston and Tollcross,	9,482	8,730	—	752	10
2. Parkhead,	8,851	8,785	—	66	19
3. Dalmarnock,	8,605	8,699	94	—	13
4. Calton,	7,507	8,026	519	—	70
5. Mile-end,	5,164	5,235	71	—	22
6. Whitevale,	5,379	5,395	—	2	29
7. Dennistoun,	6,649	6,128	—	521	33
8. Provan,	9,965	9,709	—	256	27
9. Cowlairs,	5,620	5,615	—	5	9
10. Springburn,	5,319	5,235	—	84	13
11. Townhead,	6,169	6,176	7	—	125
12. Exchange,	3,575	3,616	41	—	60
13. Blythswood,	2,578	2,614	36	—	103
14. Anderston,	6,007	6,000	—	7	74
15. Sandyford,	4,647	4,659	12	—	133
16. Park,	4,984	4,971	—	13	183
17. Cowcaddens,	8,415	8,575	160	—	67
18. Woodside,	8,183	8,248	65	—	69
19. Ruchill,	9,056	8,662	—	394	18
20. North Kelvin,	5,658	5,679	21	—	74
21. Maryhill,	5,941	5,925	—	16	15
22. Kelvinside,	6,230	6,118	—	112	120
23. Partick (East),	6,840	6,846	6	—	45
24. „ (West),	6,490	6,492	2	—	25
25. Whiteinch,	14,364	13,710	—	654	34
26. Hutchesontown,	9,613	9,627	14	—	20
27. Gorbals,	10,331	10,381	50	—	99
28. Kingston,	6,747	6,838	91	—	77
29. Kinning Park,	8,339	8,449	110	—	77
30. Govan,	7,984	7,991	7	—	37
31. Fairfield,	7,345	7,347	2	—	5
32. Pollokshields,	7,288	7,337	49	—	84
33. Camphill,	5,705	5,711	6	—	31
34. Pollokshaws,	5,603	5,513	—	90	17
35. Govanhill,	8,286	8,340	54	—	8
36. Langside,	4,832	4,843	11	—	35
37. Cathcart,	7,410	7,176	—	234	37
CITY,	261,179	259,401	—	1,778	1,917

*Includes Inhabitant Occupiers.

TABLE III.—GLASGOW.—LININGS GRANTED BY DEAN OF GUILD COURT
IN YEARS FROM 1919 TO 1931 IN RESPECT OF HOUSES.

Year ending 31st August.	NUMBER OF APARTMENTS.						TOTAL.
	1.	2.	3.	4.	5.	6.	
1919, ...	—	—	144	78	—	—	222
1920, ...	—	12	1,239	414	214	57	1,936
1921, ...	—	—	1,176	981	240	34	2,431
1922, ...	—	—	65	99	39	31	234
1923, ...	—	680	286	205	104	46	1,321
1924, ...	—	357	991	605	745	82	2,780
1925, ...	—	504	674	111	44	61	1,394
1926, ...	—	318	4,649	967	769	93	6,796
1927, ...	—	228	2,889	1,209	802	55	5,183
1928, ...	—	132	4,184	2,238	314	17	6,885
1929, ...	—	570	1,656	1,024	124	82	3,456
1930, ...	—	506	1,958	1,295	230	202	4,191
1931, ...	—	122	2,220	1,900	38	26	4,306

TABLE IV.—ABSTRACT OF METEOROLOGICAL OBSERVATIONS TAKEN AT
SPRINGBURN PUBLIC PARK.

MONTHS.	TEMPERATURE.			RAINFALL.		SUNSHINE.
	Highest Temperature in Shade.	Lowest Temperature in Shade.	Mean Temperature.	No. of Days.	Amount Collected in inches.	Hours.
1931.						
January, ...	49	22	36·5	23	3·40	48·1
February, ...	49	27	37·4	24	3·90	52·8
March, ...	58	19	37·3	15	1·17	101·9
April, ...	61	22	44·9	19	1·87	121·6
May, ...	69	31	50·5	23	4·78	163·4
June, ...	69	41	53·0	23	5·34	109·6
July, ...	71	45	57·8	30	4·80	92·2
August, ...	73	39	56·9	12	2·56	181·7
September, ...	70	35	51·0	11	1·45	81·3
October, ...	61	25	47·0	20	3·45	89·2
November, ...	56	32	43·7	27	6·92	25·8
December, ...	53	25	42·2	24	3·42	10·6
1921, ...	82	22	48·5	249	43·23	1,228
1922, ...	79	31	46·8	228	32·87	1,089
1923, ...	83	20	46·4	260	44·64	1,036
1924, ...	74	18	46·1	256	39·72	973
1925, ...	83	18	46·7	222	38·24	1,224
1926, ...	86	22	47·7	242	45·91	1,174
1927, ...	77	20	46·8	245	49·12	1,162
1928, ...	79	20	46·8	255	49·35	1,121
1929, ...	80	14	46·3	226	43·01	1,223
1930, ...	79	20	47·7	234	42·94	1,022
1931, ...	73	19	46·5	251	43·06	1,078

The records for years previous to 1921 were taken at Glasgow Observatory.

TABLE V.—GLASGOW.—BIRTHS AND BIRTH-RATES *per Million* IN EACH WARD, FOR THE YEAR 1931, AND NUMBER AND PERCENTAGE OF ILLEGITIMATE BIRTHS.

MUNICIPAL WARDS.	Births. 1931.	Birth-rate 1931.	Birth-rate 1930.	Illegitimate Births.	
				No.	% Total Births.
1. Shettleston and Tollcross, ...	967	24,317	22,103	47	4.9
2. Parkhead,	954	25,059	25,102	48	5.0
3. Dalmarnock,	997	27,848	28,237	59	5.9
4. Calton,	872	26,918	28,570	85	9.7
5. Mile-end,	649	30,337	28,854	42	6.5
6. Whitevale,	530	23,890	23,705	28	5.3
7. Dennistoun,	429	17,000	17,075	25	5.8
8. Provan,	1,035	25,245	26,048	45	4.3
9. Cowlands,	446	21,451	23,390	21	4.7
10. Springburn,	497	21,852	22,685	15	3.0
11. Townhead,	582	22,625	21,185	57	9.8
12. Exchange,	360	25,647	26,927	28	7.8
13. Blythswood,	202	17,749	20,818	35	17.3
14. Anderston,	588	23,410	25,124	39	6.6
15. Sandyford,	404	20,463	21,609	29	7.2
16. Park,	198	9,658	9,458	31	15.7
17. Cowcaddens,	998	28,528	27,868	83	8.3
18. Woodside,	800	24,862	25,516	61	7.6
19. Ruchill,	871	21,758	25,812	56	6.4
20. North Kelvin,	433	20,640	19,316	29	6.7
21. Maryhill,	563	23,110	23,170	32	5.7
22. Kelvinside,	145	6,528	8,167	4	2.8
23. Partick (East),	522	19,026	19,028	23	4.4
24. „ (West),	445	18,911	20,937	15	3.4
25. Whiteinch,	1,090	19,657	18,079	43	3.9
26. Hutchesontown,	1,136	29,261	27,115	60	5.3
27. Gorbals,	1,178	25,517	26,678	106	9.0
28. Kingston,	775	25,841	27,096	59	7.6
29. Kinning Park,	833	23,765	25,576	49	5.9
30. Govan,	876	24,594	27,879	48	5.5
31. Fairfield,	599	19,781	20,881	21	3.5
32. Pollokshields,	262	9,696	10,451	10	3.8
33. Camphill,	199	10,511	10,210	5	2.5
34. Pollokshaws,	311	14,690	15,947	7	2.3
35. Govanhill,	556	17,230	18,241	20	3.6
36. Langside,	164	9,550	9,394	8	4.9
37. Cathcart,	346	13,246	11,123	10	2.9
Institutions, &c.	114	—	—	39	—
CITY,	22,926	21,063	21,420	1,422	6.2

TABLE VI.—GLASGOW.—DEATHS AND DEATH-RATES *per Million* IN EACH MUNICIPAL WARD, FOR THE YEAR 1931, AND CORRESPONDING RATES FOR 1930 AND 1929.

MUNICIPAL WARDS.	Deaths. 1931.	Death Rates.		
		1931.	1930.	1929.
1. Shettleston and Tollcross, ...	509	12,800	12,325	12,791
2. Parkhead,	446	11,715	13,117	15,886
3. Dalmarnock,	594	16,592	14,894	16,942
4. Calton,	582	17,966	19,264	24,190
5. Mile-end,	348	16,267	16,827	17,578
6. Whitevale,	333	15,010	16,408	16,535
7. Der nistoun,	315	12,483	13,216	13,437
8. Provan,	616	15,025	11,892	13,889
9. Cowlairs,	292	14,044	11,828	14,326
10. Springburn,	261	11,476	11,766	14,250
11. Townhead,	428	16,638	15,269	16,840
12. Exchange,	270	19,235	18,920	21,587
13. Blythswood,	196	17,222	17,513	20,888
14. Anderston,	401	15,965	15,672	16,791
15. Sandyford,	316	16,006	15,795	17,862
16. Park,	308	15,026	14,825	17,288
17. Cowcaddens,	631	18,037	17,042	19,379
18. Woodside,	503	15,632	15,837	17,677
19. Ruchill,	491	12,265	12,990	15,738
20. North Kelvin,	276	13,156	13,383	14,446
21. Maryhill,	269	11,042	12,394	13,407
22. Kelvinside,	259	11,661	12,206	14,964
23. Partick (East),	400	14,577	14,848	18,056
24. „ (West),	324	13,769	10,769	15,099
25. Whiteinch,	579	10,442	10,042	10,873
26. Hutchesontown,	586	15,094	14,391	16,601
27. Gorbals,	798	17,285	17,338	19,715
28. Kingston,	449	14,971	16,884	19,138
29. Kinning Park,	450	12,838	14,717	18,606
30. Govan,	555	15,582	16,565	16,905
31. Fairfield,	397	13,111	12,205	12,481
32. Pollokshields,	284	10,510	12,259	13,360
33. Camphill,	230	12,148	13,698	14,772
34. Pollokshaws,	269	12,706	11,738	12,703
35. Govanhill,	374	11,590	11,639	13,475
36. Langside,	201	11,704	11,296	12,254
37. Cathcart,	261	9,992	9,908	10,893
Institutions,	685	—	—	—
Harbour,	19	—	—	—
*Inward Transfers,	—	—	—	—
CITY,	15,505	14,245	14,194	16,306

* Inward Transfer Deaths, where information is available, are allocated against appropriate wards.

TABLE VIII.—GLASGOW.—DEATHS AND DEATH-RATES *per Million* FROM DIFFERENT CAUSES, FOR THE YEAR 1931, AND CORRESPONDING RATES FOR 1930 AND 1929.

CAUSE OF DEATH.	DEATHS.	ANNUAL DEATH RATE PER MILLION.		
	1931.	1931.	1930.	1929.
1. Typhoid and Paratyphoid Fevers, ...	11	10	9	6
35A. Typhus Fever,	1	1	1	—
35B. Smallpox,	—	—	—	—
2. Measles,	416	382	244	73
3. Scarlet Fever,	74	68	38	37
4. Whooping Cough,	464	426	207	232
5. Diphtheria,	119	109	133	124
6. Influenza,	207	190	147	806
7. Encephalitis Lethargica,	20	18	25	27
8. Cerebro-spinal Fever,	129	119	85	140
35C. Erysipelas,	55	51	58	48
9. Tuberculosis of Respiratory System,	941	865	805	941
10A. Tuberculous Meningitis,	166	153	182	140
10B. Abdominal Tuberculosis,	60	55	51	64
10C. Other Tuberculous Diseases,	120	110	104	99
11. Syphilis,	39	36	*	*
12. General Paralysis of Insane (Tabes Dorsalis),	71	65	†	†
13. Cancer, Malignant Disease,	1,516	1,393	1,320	1,356
35D. Rheumatic Fever,	57	52	57	62
14. Diabetes,	126	116	125	125
15. Cerebral Hæmorrhage, &c.,	1,011	929	917	988
35E. Meningitis (not Tuberculous),	60	55	55	50
35F. Other Nervous Diseases,	371	341	464	536
16. Heart Disease,	2,200	2,021	1,985	2,193
17. Aneurysm,	41	38	‡	‡
18A. Arterio-sclerosis,	403	370	338	354
18B. Other Circulatory Diseases,	96	88	82	84
19. Bronchitis,	495	455	576	891
20. Pneumonia (all forms),	1,533	1,408	1,628	2,248
21. Other Respiratory Diseases,	176	162	207	221
22. Peptic Ulcer,	116	107	99	123
23. Diarrhœa, &c. (under 2 years),	304	279	267	262
24. Appendicitis,	107	98	98	95
25. Cirrhosis of Liver,	35	32	33	40
26. Other Diseases of Liver, &c.,	67	62	*	*
27. Other Digestive Diseases,	341	313	*	*
28. Acute and Chronic Nephritis,	349	321	409	411
29. Puerperal Sepsis,	71	65	79	79
30. Other Puerperal Causes,	78	72	106	87
31. Congenital Debility, Premature Birth, Malformations, &c.,	914	840	739	770
32. Senility,	380	349	*	*
33. and 34. } Suicide and Other Deaths from Violence,	653	600	663	618
35. Other Defined Causes,	747	686	1,627	1,755
36. Causes Ill-defined or Unknown,	365	335	231	221
All Causes,	15,505	14,245	14,194	16,306

Included in "Other Defined Causes," † Included in "Other Nervous Diseases." ‡ Included in "Other Circulatory Diseases."

TABLE IX.—GLASGOW, 1931.—DEATHS FROM

CAUSE OF DEATH	MALES.														Total Males
	-1	-2	-5	-10	-15	-20	-25	-35	-45	-55	-65	-75	75 +		
1. Typhoid and Paratyphoid Fevers, ...	—	—	—	1	—	1	—	1	1	—	1	1	—	6	
35A. Typhus Fever, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
35B. Smallpox, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
2. Measles, ...	77	99	44	7	—	—	—	—	—	—	—	—	—	227	
3. Scarlet Fever, ...	3	3	11	11	1	3	—	4	2	1	—	—	—	39	
4. Whooping-cough, ...	117	69	32	1	—	—	—	—	—	—	—	—	—	219	
5. Diphtheria, ...	9	9	18	13	3	3	1	—	1	1	—	—	—	58	
6. Influenza, ...	6	1	3	2	1	1	2	7	12	16	14	21	10	96	
7. Encephalitis Lethargica, ...	—	—	—	—	—	1	1	4	—	1	—	2	—	9	
8. Cerebro-spinal Fever, ...	35	8	6	5	1	2	2	1	—	1	—	1	—	62	
35C. Erysipelas, ...	7	—	—	—	—	1	1	2	2	1	6	3	5	28	
9. Tuberculosis of Respiratory System, ...	2	3	2	6	2	52	67	100	101	92	60	14	2	503	
10A. Tuberculous Meningitis, ...	11	14	21	14	17	5	2	—	—	1	—	—	—	85	
10B. Abdominal Tuberculosis, ...	2	2	2	3	2	6	4	3	1	1	1	—	—	27	
10C. Other Tuberculous Diseases, ...	4	2	7	8	5	10	4	10	10	3	11	—	—	74	
11. Syphilis, ...	7	1	—	—	—	2	1	—	5	5	6	—	—	27	
12. General Paralysis of Insane (Tabes Dorsalis), ...	—	—	—	—	—	1	—	2	15	15	20	2	—	55	
13. Cancer, Malignant Disease, ...	—	—	—	1	—	—	5	15	34	103	262	255	73	748	
35D. Rheumatic Fever, ...	—	—	1	5	2	3	2	3	—	4	—	—	—	20	
14. Diabetes, ...	—	—	—	—	—	1	3	1	5	3	9	16	4	42	
15. Cerebral Hæmorrhage, etc., ...	—	—	—	—	1	—	5	3	5	33	98	199	116	460	
35E. Meningitis (not Tuberculous), ...	15	2	5	5	2	2	—	3	2	1	—	—	—	37	
35F. Other Nervous Diseases, ...	40	4	8	6	8	4	11	15	18	27	21	23	9	194	
16. Heart Disease, ...	1	2	3	7	6	13	11	26	55	120	245	393	216	1098	
17. Aneurysm, ...	—	—	—	—	—	—	1	—	2	10	14	3	2	32	
18A. Arterio Sclerosis, ...	—	—	—	—	—	—	—	—	1	13	50	99	55	218	
18B. Other Circulatory Diseases, ...	2	—	—	—	—	1	—	—	2	9	8	19	6	47	
19. Bronchitis, ...	25	4	5	—	—	3	2	—	10	21	33	71	60	234	
20. Pneumonia (all Forms), ...	269	149	64	22	10	15	14	51	81	90	88	76	23	952	
21. Other Respiratory Diseases, ...	9	2	3	—	1	—	4	4	9	9	12	20	13	86	
22. Peptic Ulcer, ...	—	—	—	—	—	1	2	13	16	26	19	8	1	86	
23. Diarrhœa, etc. (under 2 years), ...	163	9	—	—	—	—	—	—	—	—	—	—	—	172	
24. Appendicitis, ...	—	—	1	3	6	3	5	3	14	6	4	3	1	49	
25. Cirrhosis of Liver, ...	1	—	—	—	—	—	—	1	—	3	13	3	—	21	
26. Other Diseases of Liver, etc., ...	1	—	—	1	—	—	1	—	—	5	5	8	4	25	
27. Other Digestive Diseases, ...	32	3	10	9	2	3	2	6	9	16	31	25	15	163	
28. Acute and Chronic Nephritis, ...	—	1	3	1	2	2	5	5	15	36	59	41	16	186	
29. Puerperal Sepsis, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
30. Other Puerperal Causes, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
31. Congenital Debility, Premature Birth, Malformations, etc., ...	497	2	1	—	1	1	—	—	—	—	—	—	—	502	
32. Senility, ...	—	—	—	—	—	—	—	—	—	—	2	28	87	117	
33. Suicide and other Deaths from Violence, ...	15	9	13	40	19	21	24	38	50	61	63	49	32	434	
34. Other Defined Causes, ...	42	11	6	14	8	7	5	17	32	54	75	83	53	407	
36. Causes Ill-Defined or Unknown, ...	8	3	—	—	—	—	3	7	8	46	58	58	30	221	
ALL CAUSES, ...	1,400	412	269	185	100	168	190	345	518	834	1,288	1,524	833	8,066	

DIFFERENT CAUSES IN SEXES AND AT SEVERAL AGE-PERIODS.

CAUSE OF DEATH.	FEMALES.													Total Females	Total Both Sexes.
	-1	-2	-5	-10	-15	-20	-25	-35	-45	-55	-65	-75	75+		
1. Typhoid and Paratyphoid Fevers, ...	—	—	—	1	—	—	—	1	1	—	1	1	—	5	11
35A. Typhus Fever, ...	—	—	—	—	—	—	—	1	—	—	—	—	—	1	1
35B. Smallpox, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2. Measles, ...	53	81	50	5	—	—	—	—	—	—	—	—	—	189	416
3. Scarlet Fever, ...	1	4	18	8	2	—	—	2	—	—	—	—	—	35	74
4. Whooping-cough, ...	110	85	46	4	—	—	—	—	—	—	—	—	—	247	164
5. Diphtheria, ...	5	14	17	18	4	—	1	—	—	1	1	—	—	61	119
6. Influenza, ...	3	2	—	2	1	1	2	7	9	8	14	36	26	111	207
7. Encephalitis Lethargica, ...	—	—	—	—	—	—	2	1	2	2	1	3	—	11	20
8. Cerebro-spinal Fever, ...	17	10	8	5	8	4	2	5	3	1	3	1	—	67	129
35C. Erysipelas, ...	4	1	1	—	—	1	—	2	3	3	5	3	4	27	55
9. Tuberculosis of Respiratory System, ...	4	8	6	9	15	68	88	99	68	39	27	6	1	438	941
10A. Tuberculous Meningitis, ...	8	11	24	11	12	7	3	2	2	1	—	—	—	81	166
10B. Abdominal Tuberculosis, ...	—	2	2	4	3	13	2	4	2	—	—	1	—	32	60
10C. Other Tuberculous Diseases, ...	3	7	2	5	1	6	4	6	4	6	—	1	1	46	120
11. Syphilis, ...	4	—	—	—	—	—	—	1	3	3	1	—	—	12	39
12. General Paralysis of Insane (Tabes Dorsalis), ...	—	—	—	—	—	1	—	2	4	4	5	—	—	16	71
13. Cancer, Malignant Disease, ...	—	—	1	—	1	—	3	13	52	142	240	214	102	768	1516
35D. Rheumatic Fever, ...	—	—	—	2	6	8	—	5	5	4	4	3	—	37	57
14. Diabetes, ...	—	—	—	—	—	1	—	3	6	7	31	28	8	84	126
15. Cerebral Hæmorrhage, etc., ...	2	1	—	—	—	1	—	3	9	54	119	171	191	551	1011
35E. Meningitis (not Tuberculous), ...	8	1	2	2	3	1	1	2	2	—	1	—	—	22	60
35F. Other Nervous Diseases, ...	25	16	8	1	3	6	2	9	16	32	24	27	14	177	371
16. Heart Disease, ...	—	—	3	7	13	9	17	33	58	106	204	345	307	1,102	2,200
17. Aneurysm, ...	—	—	—	—	1	—	—	—	1	2	3	1	1	9	41
18A. Arterio Sclerosis, ...	—	—	—	—	—	—	—	—	—	6	30	65	84	185	463
18B. Other Circulatory Diseases, ...	1	—	—	—	—	—	—	2	3	9	6	14	14	49	96
19. Bronchitis, ...	23	5	5	—	—	2	1	2	7	9	36	73	95	261	495
20. Pneumonia (all Forms)	144	101	49	17	5	4	5	23	43	32	45	68	45	581	1,533
21. Other Respiratory Diseases, ...	6	3	—	—	—	3	1	3	8	6	14	24	20	96	176
22. Peptic Ulcer, ...	—	—	—	—	—	1	—	3	5	6	8	7	—	30	116
23. Diarrhœa, etc. (under 2 years), ...	116	16	—	—	—	—	—	—	—	—	—	—	—	132	304
24. Appendicitis, ...	—	1	2	8	6	7	5	2	6	10	9	1	1	58	107
25. Cirrhosis of Liver, ...	—	—	—	—	—	1	—	—	2	6	1	1	3	14	35
26. Other Diseases of Liver, etc., ...	—	—	—	—	—	—	—	—	2	9	13	12	5	42	67
27. Other Digestive Diseases, ...	4	1	12	14	2	1	5	12	8	23	29	31	36	178	341
28. Acute and Chronic Nephritis, ...	1	—	1	2	1	4	3	11	21	35	38	34	12	163	349
29. Puerperal Sepsis, ...	—	—	—	—	—	2	12	42	14	1	—	—	—	71	71
30. Other Puerperal Causes, ...	—	—	—	—	—	2	12	39	25	—	—	—	—	78	78
31. Congenital Debility, Premature Birth, Malformations, etc., ...	407	1	1	—	2	—	—	1	—	—	—	—	—	412	914
32. Senility, ...	—	—	—	—	—	—	—	—	—	—	—	42	221	263	380
33. Suicide and other Deaths from Violence, ...	10	7	11	18	6	4	6	20	17	27	28	28	36	219	653
34. Other Defined Causes, ...	29	7	9	3	4	5	9	22	30	53	63	63	43	340	747
35. Causes Ill-Defined or Unknown, ...	9	2	1	1	1	1	2	4	5	12	28	49	29	114	365
ALL CAUSES, ...	997	381	279	147	100	164	188	387	446	659	1,035	1,357	1,299	7,439	15,505

TABLE X.—GLASGOW, 1931.—DEATHS OCCURRING IN INSTITUTIONS FOR THE TREATMENT OF THE SICK, NURSING HOMES, &c.

CAUSE OF DEATH.	Local Authority General Hospitals and Poorhouses.	Local Authority Fever Hospitals and Sanatoria.	Local Authority Mental Hospitals.	Voluntary Hospitals and Infirmarys.	Nursing Homes, &c.	Totals.	% of all Deaths.	Outward Transfer Deaths.
1. Typhoid and Paratyphoid Fevers,	—	9	—	—	—	9	81.8	—
35A. Typhus Fever,	—	1	—	—	—	1	100.0	—
35B. Smallpox,	—	—	—	—	—	—	—	—
2. Measles,	28	239	—	—	—	267	64.2	5
3. Scarlet Fever,	—	66	—	—	—	66	89.2	3
4. Whooping Cough,	8	264	—	—	—	272	58.6	5
5. Diphtheria,	3	110	—	2	—	115	96.6	6
6. Influenza,	12	4	2	7	2	27	13.0	2
7. Encephalitis Lethargica,	8	—	1	—	—	9	45.0	2
8. Cerebro-spinal Fever,	—	111	—	8	1	120	93.0	16
35C. Erysipelas,	2	38	—	2	—	42	76.4	3
9. Tuberculosis of Respiratory System,	138	372	21	39	1	571	60.7	35
10A. Tuberculous Meningitis,	26	79	—	25	—	130	78.3	19
10B. Abdominal Tuberculosis,	7	21	—	8	1	37	61.7	15
10C. Other Tuberculous Diseases,	21	49	1	22	—	93	77.5	19
11. Syphilis,	19	3	1	11	—	34	69.4	3
12. General Paralysis of Insane (Tabes Dorsalis),	17	1	39	2	2	61	85.9	2
13. Cancer, Malignant Disease,	314	9	8	280	47	658	43.4	267
35D. Rheumatic Fever,	7	1	—	22	1	31	54.4	7
14. Diabetes,	18	—	—	39	2	59	46.8	27
15. Cerebral Hæmorrhage, &c.,	298	5	16	66	14	399	39.5	47
35E. Meningitis (not Tuberculous),	11	7	1	16	—	35	58.3	9
35F. Other Nervous Diseases,	96	1	61	61	9	228	61.5	46
16. Heart Disease,	683	15	65	165	30	958	43.6	97
17. Aneurysm,	14	—	—	13	—	27	65.9	5
18A. Arterio-sclerosis,	74	—	16	21	12	123	30.5	15
18B. Other Circulatory Diseases,	19	2	1	14	2	38	39.6	11
19. Bronchitis,	81	2	3	24	2	112	22.6	16
20. Pneumonia (all forms),	236	558	14	147	9	964	62.9	57
21. Other Respiratory Diseases,	24	6	8	19	7	64	36.4	15
22. Peptic Ulcer,	11	—	1	72	6	90	77.6	65
23. Diarrhoea, &c. (under 2 years),	138	16	—	53	—	207	68.1	19
24. Appendicitis,	7	3	—	82	10	102	95.3	75
25. Cirrhosis of Liver,	8	—	1	5	2	16	45.7	6
26. Other Diseases of Liver, &c.,	4	—	1	36	4	45	67.2	39
27. Other Digestive Diseases,	42	7	3	148	10	210	61.6	125
28. Acute and Chronic Nephritis,	89	2	5	91	7	194	55.6	59
29. Puerperal Sepsis,	11	45	—	7	2	65	91.5	14
30. Other Puerperal Causes,	14	4	—	43	2	63	80.8	23
31. Congenital Debility, Premature Birth, Malformations, &c.,	143	10	—	214	9	376	41.1	75
32. Senility,	61	1	11	8	5	86	22.6	18
33 and 34. } Suicide and other Deaths from Violence,	28	4	—	321	—	353	54.1	125
35. Other Defined Causes,	178	30	9	260	23	500	66.9	218
36. Causes Ill-defined or Unknown,	11	—	—	15	—	26	7.1	14
YEAR, 1931,	2,909	2,095	289	2,368	222	7,883	50.8	1,629
YEAR, 1930,	2,837	1,733	†	2,315	318	7,203	48.4	1,617

NOTE.—The figures for 1931 include deaths in institutions situated beyond the City boundary. Those for 1930 do not include such deaths.

† Included in heading "Nursing Homes, &c."

TABLE XI.—GLASGOW, 1931.—DEATHS OF PERSONS WITH INSTITUTIONAL OR HARBOUR ADDRESS ONLY WITHIN THE CITY, ARRANGED ACCORDING TO USUAL RESIDENCE AS REGISTERED. (OUTWARD TRANSFERS EXCLUDED.)

CAUSE OF DEATH.	Staff with Acquired Institutional Residence.	OTHER THAN STAFF.						TOTAL.
		Corporation General and Model and Public and Poorhouses.	Model Lodging Houses.	Other Institutions.	Harbour.	Residence out- with Glasgow but not transfrable.	Residence out- with Scotland transfrable.	
1. Typhoid and Paratyphoid Fevers,	—	—	—	—	—	1	—	1
35A. Typhus Fever,	—	—	—	—	—	—	—	—
35B. Smallpox,	—	—	—	—	—	—	—	—
2. Measles,	—	1	—	1	—	—	—	2
3. Scarlet Fever,	—	—	1	2	—	3	—	6
4. Whooping-cough,	—	2	—	—	—	—	—	2
5. Diphtheria,	—	—	—	—	—	2	—	2
6. Influenza,	—	2	1	10	—	1	—	14
7. Encephalitis Lethargica,	—	1	—	—	—	—	—	1
8. Cerebro Spinal Fever,	—	—	—	—	1	1	—	2
35C. Erysipelas,	—	1	1	1	—	1	—	4
9. Tuberculosis of Respiratory System,	—	6	43	5	1	—	—	55
10A. Tuberculous Meningitis,	—	—	—	—	—	—	—	—
10B. Abdominal Tuberculosis,	1	—	1	—	—	—	—	2
10C. Other Tuberculous Diseases,	1	—	1	—	—	—	1	3
11. Syphilis,	—	—	1	—	—	—	—	1
12. General Paralysis of Insane (Tabes Dorsalis),	—	3	2	2	—	—	—	7
13. Cancer, Malignant Disease,	1	7	42	14	—	1	2	67
35D. Rheumatic Fever,	1	—	—	—	—	—	—	1
14. Diabetes,	—	—	1	—	—	—	—	1
15. Cerebral Hæmorrhage, etc.,	—	14	38	18	—	—	—	70
16. Heart Disease,	—	22	105	19	—	—	2	148
35E. Meningitis (not Tuberculous),	—	—	—	—	—	—	—	—
35F. Other Nervous Diseases,	—	6	7	7	—	—	1	21
17. Aneurysm,	—	—	1	—	—	—	—	1
18A. Arterio-sclerosis,	—	3	11	9	—	—	—	23
18B. Other Circulatory Diseases,	—	—	—	—	—	—	—	—
19. Bronchitis,	—	1	15	8	—	1	—	25
20. Pneumonia (all Forms),	—	4	28	6	1	2	3	44
21. Other Respiratory Discases,	—	1	1	2	—	—	—	4
22. Peptic Ulcer,	—	—	3	4	—	—	—	7
23. Diarrhœa, etc. (under 2 years),	—	3	1	4	—	1	—	9
24. Appendicitis,	—	—	1	5	1	—	1	8
25. Cirrhosis of Liver,	—	1	—	—	—	—	—	1
26. Other Diseases of Liver, etc.,	—	1	1	—	—	—	1	3
27. Other Digestive Diseases,	1	—	4	2	1	—	2	10
28. Acute and Chronic Nephritis,	—	1	14	2	1	—	—	18
29. Puerperal Sepsis,	—	—	—	—	—	—	—	—
30. Other Puerperal Causes,	—	—	—	—	—	—	—	—
31. Congenital Debility, Premature Birth, Malformations, etc.,	—	3	1	5	1	—	—	10
32. Senility,	—	2	7	8	—	—	—	17
33 } Suicide and other Deaths from	—	—	—	—	—	—	—	—
34 } Violence,	—	—	23	2	11	—	—	36
35. Other Defined Causes,	—	4	22	10	—	—	4	40
36. Causes Ill-Defined and Unknown,	—	1	33	2	1	—	1	38
ALL CAUSES,	5	90	410	148	19	14	18	704

TABLE XII.—GLASGOW.—DEATHS UNDER 1 YEAR AND DEATH-RATES PER 1,000 BIRTHS IN EACH MUNICIPAL WARD, FOR THE YEAR 1931.

MUNICIPAL WARDS.	Deaths —1 Year.		Death Rate per 1,000 Births.		
	1931.	1931.	1930.	1929.	
1. Shettleston and Tollcross,	87	90	87	107	
2. Parkhead,	79	83	104	114	
3. Dalmarnock,	127	127	96	105	
4. Calton,	132	140	131	150	
5. Mile-end,	76	117	128	111	
6. Whitevale,	53	100	126	98	
7. Dennistoun,	35	82	70	80	
8. Provan,	128	124	101	101	
9. Cowlairs,	40	90	73	96	
10. Springburn,	46	93	98	125	
11. Townhead,	75	129	87	82	
12. Exchange,	54	150	153	124	
13. Blythswood,	24	119	124	155	
14. Anderston,	74	126	105	125	
15. Sandyford,	45	111	100	110	
16. Park,	14	71	65	92	
17. Cowcaddens,	119	119	120	115	
18. Woodside,	91	114	103	95	
19. Ruchill,	95	109	96	118	
20. North Kelvin,	42	97	81	107	
21. Maryhill,	44	78	102	92	
22. Kelvinside,	5	34	11	27	
23. Partick (East),	40	77	104	121	
24. „ (West),	41	92	78	87	
25. Whiteinch,	67	61	72	69	
26. Hutchesontown,	134	118	124	123	
27. Gorbals,	150	127	128	136	
28. Kingston,	81	105	118	113	
29. Kinning Park,	85	102	89	125	
30. Govan,	111	127	122	128	
31. Fairfield,	56	93	84	78	
32. Pollokshields,	9	34	66	86	
33. Camphill,	18	90	69	57	
34. Pollokshaws,	21	68	49	49	
35. Govanhill,	43	77	83	72	
36. Langside,	11	67	49	47	
37. Cathcart,	16	46	50	56	
Institutions,	23	—	—	—	
Harbour,	6	—	—	—	
CITY,	2,397	105	101	107	

TABLE XIII.—GLASGOW, 1931.—MALE INFANT DEATHS AT GIVEN AGES AND FROM SEVERAL CAUSES.

CAUSE OF DEATH.	AGE IN WEEKS.				Total -4 weeks.	AGE IN MONTHS.								Total -1 year.				
	-1	-2	-3	-4		-2	-3	-4	-5	-6	-7	-8	-9		-10	-11	-12	
I. CONGENITAL MALFORMATIONS,...	26	8	2	4	40	16	8	2	2	—	1	1	1	—	—	1	—	73
II. DISEASES OF EARLY INFANCY,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	424
(a) Congenital Debility, Sclerema,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	117
and Icterus, ...	34	16	9	8	67	23	10	7	3	3	3	1	1	—	—	—	—	239
(b) Premature Birth, ...	174	14	15	9	212	15	9	3	—	—	—	—	—	—	—	—	—	32
(c) Injury at Birth, ...	24	3	—	2	29	1	1	—	—	—	—	—	—	—	—	—	—	24
(d) Atelectasis, ...	20	1	—	1	22	1	1	—	—	—	—	—	—	—	—	—	—	12
(e) Others, ...	9	—	2	2	11	1	—	—	—	—	—	—	—	—	—	—	—	303
III. DISEASES OF RESPIRATORY SYSTEM, ...	3	2	6	4	15	23	26	22	33	33	24	26	37	20	27	25	25	197
IV. DISEASES OF DIGESTIVE SYSTEM,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	163
(a) Diarrhoeal, ...	2	2	2	4	10	15	18	33	20	21	21	7	14	7	5	7	6	34
(b) Others, ...	1	—	1	1	3	2	4	8	1	1	1	3	1	4	2	2	3	55
V. DISEASES OF NERVOUS SYSTEM,	6	3	—	—	9	5	6	5	3	3	6	3	3	7	2	4	2	19
VI. TUBERCULOUS DISEASES,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
(a) Pulmonary Tuberculosis,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
(b) Tuberculous Meningitis,...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
(c) Abdominal Tuberculosis,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
(d) Other Forms, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
VII. INFECTIOUS DISEASES, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	249
(a) Measles, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	77
(b) Scarlet Fever, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
(c) Whooping-cough, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	117
(d) Diphtheria, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
(e) Erysipelas, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
(f) Cerebro-spinal Fever, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	35
(g) Varicella, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
(h) Typhoid and Paratyphoid Fevers,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
VIII. SYPHILIS,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
IX. OVERLAYING, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
X. OTHER VIOLENCE, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	58
XI. ALL OTHER CAUSES, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTALS, ...	503	54	44	40	447	119	95	101	79	78	78	83	92	77	78	79	72	1,400

TABLE XIV.—GLASGOW, 1931.—FEMALE INFANT DEATHS AT GIVEN AGES AND FROM SEVERAL CAUSES.

CAUSE OF DEATH.	AGE IN WEEKS.					Total - 4 weeks.	AGE IN MONTHS.										Total - 1 year.
	AGE IN WEEKS.						AGE IN MONTHS.										
	-1	-2	-3	-4			-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12
I. CONGENITAL MALFORMATIONS,...	16	3	4	3		26	9	7	1	2	1	2	—	1	—	1	51
II. DISEASES OF EARLY INFANCY,																	356
(a) Congenital Debility, Sclerema, and Icterus, ...	31	11	4	2	48	14	5	8	1	1	2	1	1	—	—	1	82
(b) Premature Birth, ...	172	19	14	6	211	12	4	3	—	—	—	—	—	—	—	—	230
(c) Injury at Birth, ...	11	2	1	1	14	1	1	1	—	—	—	—	—	—	—	—	16
(d) Atelectasis, ...	14	1	—	—	16	1	2	—	—	—	—	—	—	—	—	—	20
(e) Others, ...	2	1	2	2	7	1	1	—	—	—	—	—	—	—	—	—	8
III. DISEASES OF RESPIRATORY SYSTEM, ...	4	6	5	1	16	11	15	12	16	10	17	20	20	11	14	11	173
IV. DISEASES OF DIGESTIVE SYSTEM,																	120
(a) Diarrhoeal, ...	1	1	—	1	3	11	19	19	13	8	12	9	3	7	9	3	116
(b) Others, ...	—	—	1	4	1	2	2	3	2	—	2	—	3	4	2	2	4
V. DISEASES OF NERVOUS SYSTEM, ...	8	2	—	—	14	—	—	—	—	—	1	1	—	—	—	—	116
VI. TUBERCULOUS DISEASES, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
(a) Pulmonary Tuberculosis, ...	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	4
(b) Tuberculous Meningitis, ...	—	—	—	—	—	—	—	—	2	1	1	—	—	—	—	—	8
(c) Abdominal Tuberculosis, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
(d) Other Forms, ...	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	3
VII. INFECTIOUS DISEASES, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	191
(a) Measles, ...	—	—	—	—	—	—	—	—	3	—	6	6	6	9	11	12	53
(b) Scarlet Fever, ...	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
(c) Whooping-cough, ...	—	1	—	1	2	—	5	6	6	6	7	14	11	12	15	23	110
(d) Diphtheria, ...	—	—	—	—	—	—	—	—	—	—	—	—	2	—	1	—	5
(e) Erysipelas, ...	—	—	—	—	—	—	—	—	—	1	2	—	—	—	1	—	4
(f) Cerebro-spinal Fever, ...	—	—	—	—	—	—	—	1	1	2	1	4	3	1	2	—	17
(g) Varicella, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
(h) Typhoid and Paratyphoid Fevers, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
VIII. SYPHILIS, ...	1	—	—	1	2	2	—	—	—	—	—	—	—	—	—	—	4
IX. OVERLAYING, ...	—	—	—	1	1	—	3	—	—	—	—	—	—	—	—	—	4
X. OTHER VIOLENCE, ...	3	—	—	—	3	—	1	—	—	—	—	—	—	—	—	—	6
XI. ALL OTHER CAUSES, ...	4	—	5	1	10	2	4	4	3	3	4	4	1	4	1	2	42
TOTALS, ...	267	47	36	24	374	70	70	58	52	36	57	59	52	52	57	60	997

TABLE XV.—GLASGOW, 1929-1931.—ABSTRACT OF NOTIFICATIONS UNDER
NOTIFICATION OF BIRTHS ACT, 1907, AND RESULTS OF VISITS.

	1931.	1930.	1929.
Total Number of Notifications,	23,995	24,407	23,917
Doctor at Home,	6,001	6,394	6,451
Doctor in Institution,	4,925	4,346	3,939
Maternity Hospital (Outdoor) Nurse,	4,234	3,975	3,742
Other Institutional Nurse,	4	3	—
Certified Midwife,	8,814	9,676	9,765
Others,	17	13	20
Total Cards issued,	17,994	18,013	17,466
Total Cards returned,	18,007	17,670	17,661
Full Information,	17,273	16,968	16,786
Doctor found in attendance,	6	7	17
Wrong Address—Not Traced,	—	—	—
Others,	728	695	858

TABLE XVI.—GLASGOW, 1929-1931.—BIRTHS NOTIFIED SHOWING MEDICALLY
AND NOT MEDICALLY ATTENDED.

	1931	1930	1929
Notifications Received— <i>less Duplicates</i> —			
Total,	23,995	24,407	23,917
Live-births,	22,992	23,376	22,812
Still-births,	1,003	1,031	1,105
Per cent. Still-births to Total,	4.2	4.2	4.6
Medically attended—			
Total Births at Home,	6,001	6,394	6,451
In Institutions,	4,925	4,346	3,939
Total,	10,926	10,740	10,390
Per cent.,	45.5	44.0	43.4
Still-births at Home,	211	250	254
Still-births in Institutions,	414	380	465
Not Medically attended—			
Maternity Hospital, Outdoor Nurse,	4,234	3,975	3,742
Other Institutional Nurses,	4	3	—
Certified Midwives,	8,814	9,676	9,765
Others,	17	13	20
Total,	13,069	13,667	13,527
Per cent.,	54.5	56.0	56.6
Still-births,	378	401	386

TABLE XVII.—GLASGOW, 1930 AND 1931.—CASES OF INFECTIOUS DISEASE REGISTERED AND NUMBERS OF THESE TREATED IN FEVER HOSPITALS, &c.†

	1931.				1930.			
	Fever Hosp.	Other Institutions.	Home.	Total.	Fever Hosp.	Other Institutions.	Home.	Total.
A.—Notifiable—								
Typhus Fever,	1	—	—	1	2	—	—	2
Enteric Fever,	67	—	—	67	46	1	2	49
Paratyphoid B,	40	1	3	44	86	3	2	91
Continued and Undefined Fever	1	—	2	3	3	—	1	4
Puerperal Fever,	405	194	64	663	389	168	41	598
Puerperal Pyrexia,†	56	112	60	228	41	127	67	235
Smallpox,	—	—	—	—	3	—	—	3
Scarlet Fever,	6,129	3	888	7,020	4,639	2	319	4,960
Diphtheria and Membranous Croup,	2,049	6	53	2,108	2,542	6	73	2,621
Erysipelas,	548	16	533	1,097	645	39	575	1,259
Cholera,	—	—	—	—	—	—	—	—
Cerebro-spinal Fever,	161	14	7	182	112	20	16	148
Ophthalmia Neonatorum,	58	—	747	805	58	—	764	822
Trachoma,	—	12	20	32	—	6	19	25
Acute Encephalitis Lethargica,	4	—	6	10	6	6	20	32
Acute Polio-Encephalitis,	—	—	—	—	3	—	—	3
Acute Poliomyelitis,	4	—	—	4	14	6	3	23
Acute Primary Pneumonia,	3,104	485	1,564	5,153	3,273	702	2,443	6,418
Acute Influenzal-Pneumonia,	173	17	167	357	153	19	175	347
Malaria,	1	—	12	13	1	1	20	22
Dysentery,	49	4	26	79	58	3	13	74
Infective Jaundice,	—	—	—	—	—	1	4	5
Anthrax,	1	—	—	1	—	—	—	—
Pulmonary Tuberculosis,	993	—	709	1,702	957	—	730	1,687
Other Forms of Tuberculosis,	441	—	535	976	433	—	614	1,047
B.—Not Notifiable—								
Measles,	1,784	15	13,573	15,372	1,049	51	11,304	12,404
German Measles,	6	1	108	115	18	—	150	168
Whooping-cough,	890	9	8,320	9,219	506	13	5,268	5,787
Chickenpox,*	241	6	7,472	7,719	207	46	6,952	7,205
Mumps,	4	—	2	6	8	—	1	9
Beri-Beri,	—	—	—	—	6	—	—	6
Totals,	17,210	895	34,871	52,976	15,258	1,220	29,576	46,054
Notified, but diagnosis altered to Non-Infectious Diseases,	1,193	5	6	1,204	1,279	2	4	1,285
Total Registered,	18,403	900	34,877	54,180	16,537	1,222	29,580	47,339

† Where patients suffer from two or more diseases, each disease is reckoned as a case.

‡ Made compulsorily notifiable from 1st October, 1929.

* Made compulsorily notifiable in March, 1927.

TABLE XVIII.—GLASGOW, 1927-1931.—CASE-RATES *per Million*
FOR INFECTIOUS DISEASES.

	CASE RATES PER MILLION.				
	1931.	1930.	1929.	1928.	1927.
A.—Notifiable—					
Typhus Fever,	1	2	—	—	—
Enteric Fever & Paratyphoid B, ...	102	129	78	53	136
Continued and Undefined Fever, ...	3	4	5	4	5
Puerperal Fever,	609	549	474	379	254
Puerperal Pyrexia,	209	216	45	—	—
Smallpox,	—	3	20	—	—
Scarlet Fever,	6,449	4,555	3,079	2,971	3,777
Diphtheria and Membranous Croup, ...	1,937	2,407	1,945	2,414	2,785
Erysipelas,	1,008	1,156	1,008	846	778
Cholera,	—	—	—	—	—
Cerebro-spinal Fever,	167	136	186	94	72
Ophthalmia Neonatorum,	740	755	588	635	598
Trachoma,	29	23	41	28	45
Acute Encephalitis Lethargica,	9	29	30	31	21
Acute Polio-Encephalitis,	—	3	1	2	—
Acute Poliomyelitis,	4	21	24	109	12
Acute Primary Pneumonia,	4,734	5,895	6,469	5,202	5,392
Acute Influenzal-Pneumonia,	328	319	1,082	371	344
Malaria,	12	20	29	22	17
Dysentery,	73	68	109	41	27
Infective Jaundice,	—	5	—	—	—
Pulmonary Tuberculosis,	1,564	1,549	1,656	1,582	1,489
Other Forms of Tuberculosis,	897	962	911	1,016	1,010
B.—Not Notifiable—					
Measles,	14,123	11,393	5,938	9,268	8,241
German Measles,	106	154	1,339	241	159
Whooping-cough,	8,470	5,315	4,686	7,454	9,168
Chickenpox,	7,092	6,617	7,440	5,105	7,215
Others,	5	13	9	12	5
Totals,	48,671	42,298	37,192	37,880	41,550

TABLE XIX.

CASES OF INFECTIOUS DISEASE REGISTERED IN EACH MONTH—SHOWING NUMBER

	Typhus Fever.		Enteric, including Paratyphoid Fever.		Continued and Undefined Fever.		Puerperal Fever.		Puerperal Pyrexia.		Smallpox.		Scarlet Fever.		Diphtheria and Membranous Croup.		Erysipelas.		Cerebro-spinal Fever.		Ophthalmia Neonatorum.		Trachoma.		Acute Encephalitis Lethargica.		Acute Folio-Encephalitis.		Acute ...	
	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.
Jan., ...	1	...	5	...	27	23	8	12	...	432	37	187	10	57	63	20	4	4	57	...	2	1	...	...	...	...	...	...	...	...
Feb.,	5	...	43	27	2	27	...	376	28	170	2	48	53	17	2	5	68	...	1	...	...	...	...	...	...	...	...	...
March,	2	...	37	29	6	17	...	346	35	161	8	45	47	11	1	3	78	...	4	...	...	...	...	...	...	...	...	...
April,	5	...	33	16	12	19	...	556	60	159	4	40	38	28	...	3	57	...	2	...	1	...	...	...	...	...	...	...
May,	11	21	36	11	4	15	...	504	42	130	4	42	53	15	2	6	60	...	7	...	...	...	...	...	...	...	...	...
June,	4	...	29	20	2	22	...	429	26	156	2	40	44	10	2	6	69	...	8	...	...	...	...	...	...	...	...	...
July,	4	2	35	11	3	8	...	316	11	119	2	28	35	9	...	4	69	...	2	...	...	...	...	...	...	...	...	...
August,	32	...	32	12	2	4	...	445	13	119	3	37	21	9	114	58	...	...	1	...	...	...	...	...	...	...	...	...
Sept.,	21	...	26	21	5	8	...	612	31	182	5	44	35	10	3	2	47	...	1	...	...	...	...	...	...	...	...	...
October,	10	...	30	30	5	14	...	690	131	217	10	53	48	8	...	3	63	...	4	...	2	...	...	...	...	...	...	...
Nov.,	6	...	38	30	5	8	...	727	213	202	5	64	53	8	3	4	73	...	1	...	2	...	...	...	...	...	...	...
Dec.,	2	...	39	28	2	18	...	696	264	247	4	40	59	16	3	4	48	...	3	...	...	...	...	...	...	...	...	...
	1	...	107	41	2405	258	56	172	...	6129	891	2049	59	548	549	161	21	58	747	...	32	4	6	...	...	...	...	...	...	...

GLASGOW.

TREATED IN FEVER HOSPITALS DURING 1931.

Acute Primary Pneumonia.		Acute Influenzal Pneumonia.		Malaria.		Dysentery.		Pulmonary Tuberculosis.		Other Forms of Tuberculosis.		Measles.		German Measles.		Whooping-cough.		Chickenpox.		TOTALS.	
Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.	Hosp.	Others.
209	246	21	22	...	1	10	3	73	60	30	43	2	27	...	15	151	1869	24	980	1363	3473
383	290	29	45	...	1	5	8	91	56	46	61	1	47	4	13	164	1547	11	885	1401	3160
306	241	34	29	1	...	1	3	103	63	39	50	6	25	...	10	144	1495	29	865	1275	3000
341	196	21	25	...	2	3	1	93	78	43	59	20	126	...	7	130	1143	26	704	1515	2538
304	146	13	6	...	2	6	2	98	56	51	56	69	465	...	6	92	717	14	759	1396	2411
213	84	13	9	...	2	5	4	90	66	32	50	107	699	1	10	81	484	21	752	1240	2354
153	59	6	3	...	...	2	2	81	46	38	30	166	154	1	...	54	48	28	188	1048	670
147	45	5	3	...	...	8	6	75	44	38	36	144	458	...	2	16	408	14	190	1138	1304
237	92	7	7	...	2	2	...	77	51	34	30	219	1338	...	13	16	184	17	321	1511	2189
216	130	6	12	...	2	2	...	77	53	19	41	316	2957	...	12	13	167	22	565	1687	4241
271	275	10	13	...	...	4	...	73	54	45	39	385	4096	...	10	17	144	12	662	1871	5682
224	245	8	10	...	...	1	1	60	82	26	40	349	3196	...	11	12	123	23	607	1760	4742
3104	2049	173	184	1	12	49	30	993	709	441	535	1784	13588	6	109	890	8329	241	7478	17205	35764
Add—Others,.....																				5	2
Altered Diagnoses, ...																				1193	11
																				<u>18,403</u>	<u>35,777</u>

TABLE XX.—HOSPITAL BED ACCOMMODATION FOR INFECTIOUS DISEASES
IN GLASGOW SINCE 1865 (EXCLUDING TUBERCULOSIS).

YEAR.	PARISH.			Glasgow Royal Infirmary.	LOCAL AUTHORITY.						Total Beds.	Population in Thousands.	Beds per Thousand.
	City.	Barony.	Govan.		Parliamen- tary Road.	Belvidere Fever.	Belvidere Smallpox.	Ruchill.	Shieldhall.	Knights wood.			
1865	100	120	54	200	136	—	—	—	—	—	610	428	1.4
1866	100	120	54	175	136	—	—	—	—	—	585	438	1.3
1867	—	120	54	100	136	—	—	—	—	—	410	446	0.9
1869	—	120	54	135	136	—	—	—	—	—	445	464	1.0
1870	—	120	54	100	250	250	—	—	—	—	774	471	1.7
1872	—	120	—	100	250	250	—	—	—	—	720	495	1.4
1875	—	—	—	100	250	250	—	—	—	—	600	500	1.2
1876	—	—	—	—	250	250	—	—	—	—	500	502	1.0
1878	—	—	—	—	120	250	150	—	—	—	520	507	1.0
1880	—	—	—	—	120	250	150	—	—	—	520	510	1.0
1881	—	—	—	—	120	370	150	—	—	—	640	512	1.2
1882	—	—	—	—	120	220	150	—	—	—	490	518	1.0
1887	—	—	—	—	120	390	150	—	—	—	660	545	1.2
1893	—	—	—	—	200	390	150	—	—	—	740	678	1.1
1900	—	—	—	—	200	390	150	440	—	—	1,180	744	1.6
1901	—	—	—	—	200	390	220	440	—	—	1,250	764	1.6
1906	—	—	—	—	—	390	220	440	—	—	1,050	836	1.3
1910	—	—	—	—	—	390	220	542	—	—	1,152	884	1.3
1913	—	—	—	—	—	390	220	542	100	81	1,333	1,032	1.3
1915	—	—	—	—	—	390	220	542	100	10	1,262	1,035	1.2
1923	—	—	—	—	—	610	—	542	100	114	1,366	1,074	1.3
1925	—	—	—	—	—	610	—	542	100	134	1,386	1,090	1.3
1926	—	—	—	—	—	610	—	542	120	134	1,406	1,090	1.3
1929	—	—	—	—	—	610	—	542	100	170	1,422	1,089	1.3
1930	—	—	—	—	—	*642	—	542	100	170	1,454	1,089	1.4
1931	—	—	—	—	—	*642	—	542	100	170	1,454	1,088	1.4

* Ward for Venereal Diseases with 24 beds not included.

The City has also a part interest in Lightburn Hospital—about 8 beds.

"	"	"	Darnley	"	"	20	"
"	"	"	Blawarthill	"	"	7	"

Smallpox accommodation (20 beds) is provided at Robroyston Hospital, and in the event of an epidemic of smallpox the tuberculosis wards of Robroyston Auxiliary Hospital (100 beds) would be utilised in the first place, and, if necessary, the wards of the main hospital.

Puerperal Fever accommodation (56 beds) has been provided at Robroyston Hospital since October, 1930.

TABLE XX.—(Continued).

INSTITUTIONAL ACCOMMODATION FOR FEVER AND TUBERCULOSIS PATIENTS:—

				Fever.	Tuberculosis.	Total.
Belvidere Hospital, ...	...	...	...	*642	—	642
Ruchill Hospital, ...	...	...	...	542	272	814
Shieldhall Hospital, ...	...	...	...	100	—	100
Knightswood Hospital, ...	...	...	...	170	88	258
Bellefield Sanatorium, ...	...	...	...	—	108	108
Robroyston Sanatorium, ...	...	...	...	76	492	568
Mearns Kirk Sanatorium, ...	...	...	...	—	466	466
Baird St. Reception House, ...	...	...	...	†	24	24
				1,530	1,450	2,980
Stobhill General Hospital, ...	...	...	...	—	107	107
Eastern District General Hospital, ...	...	...	...	—	2	2
Western District General Hospital, ...	...	...	...	—	5	5
				—	114	114†
Barnhill Institution, ...	...	...	...	—	44	44
Southern General Hospital, ...	...	...	...	—	20	20
				—	64	64†
Beds in Corporation Institutions, ...	...	...	...	1,530	1,628	3,158
Ochil Hills Sanatorium, ...	...	...	...	—	65	65
Bridge of Weir Sanatorium, ...	...	...	...	—	80	80
Dunblane Sanatorium, ...	...	...	...	—	12	12
Blawarthill Hospital, ...	...	...	...	7	2	9
Hairmyres Sanatorium, ...	...	...	...	—	6	6
Lanfine Home, ...	...	...	...	—	30	30
Darnley Hospital, ...	...	...	...	20	12	32
Strathblane Hospital, ...	...	...	...	—	10	10
Lightburn Hospital, ...	...	...	...	18	—	18
Beds in other Institutions, ...	...	...	...	45	217	262‡
TOTAL, ...	...	...	...	1,575	1,845	3,420

* Accommodation for Venereal Disease (24 beds) excluded.

† Accommodation for Venereal Disease and Ophthalmia Neonatorum (24 beds) excluded.

‡ Average daily number occupied during 1931.

TABLE

SHOWING NUMBER, AVERAGE RESIDENCE, AND

ORDINARY NETT EXPENDITURE (as per Treasurer's Statement), excluding Interest and Sinking Fund Charges:—

Infectious Diseases Hospital, Belvidere, ...	£63,844	6	3
Infectious Diseases Hospital, Ruchill, ...	95,467	15	0
Infectious Diseases Hospital, Shieldhall, ...	14,900	17	9
Infectious Diseases Hospital, Knightswood, ...	27,378	1	11
Sanatorium and Auxiliary Hospital, Robroyston, ...	53,856	4	8
Bellefield Sanatorium, ...	12,894	11	10
Mearns Kirk Hospital, ...	30,526	10	6
	<u>£298,868</u>	<u>7</u>	<u>11</u>

Average Residence of Patients dismissed, 1930-1931, ... 57.77 days.

Average Daily Expenditure, ...	£818	16	4
Average Daily Cost per Patient, ...	0	6	1
Average Cost of Treatment per Patient, ...	17	11	5
Average Cost of Bed per Year, ...	118	5	0

NUMBER OF PATIENTS TREATED IN HOSPITALS AND SANATORIA
AND AVERAGE DAILY COST PER PATIENT.

	Remain- ing, 31/5/30.	Admitted 1930/31.	Total under Treatment.	Dismissed, 1930/31.	Remain- ing 31/5/31.	Average Daily Number.	Average Daily Cost per Patient.
Belvidere Hospital, ...	501	6,446	6,947	6,333	614	607	5/9
Ruchill Hospital, ...	721	6,425	7,146	6,247	899	839	6/3
Shieldhall Hospital, ...	92	1,074	1,166	1,063	103	98	5/5
Knightswood Hospital, ...	271	2,235	2,506	2,196	310	277	8/3
Robroyston Sanatorium and Auxiliary Hospital, ...	514	935	1,449	948	501	504	5/10
Bellefield Sanatorium, ...	110	163	273	164	109	110	6/5
Mearns Kirk Hospital, ...	72	540	612	173	439	274	6/1
Total, ...	2,281	17,818	20,099	17,124	2,975	2,709	6/1*
Darnley Joint Hospital, ...	23	121	144	120	24	20	—
Lightburn Joint Hospital, ...	14	130	144	134	10	15	—
Bla warthill Joint Hospital, ...	8	56	64	59	5	5	—
Grand Total, ...	2,326	18,125	20,451	17,437	3,014	2,749	—

* Interest and Sinking Fund averages 1/8 per patient day.

XXI.

COST OF TREATMENT OF PATIENTS, 1930-1931.

PATIENTS DISMISSED FROM CORPORATION INSTITUTIONS, CLASSIFIED AS TO DISEASE, AVERAGE RESIDENCE OF PATIENTS DISMISSED, AND AVERAGE COST AT THE DAILY RATE GIVEN ABOVE.

DISEASE.	NUMBER DISMISSED.	AVERAGE RESIDENCE.	AVERAGE COST.
Typhus Fever,	5	43·20 days	£13 2 10
Smallpox,	—	—	—
Enteric Fever,	124	52·94 „	16 2 1
Anthrax,	—	—	—
Puerperal Fever,	447	35·35 „	10 15 1
Scarlet Fever,	5,035	41·15 „	12 10 4
Diphtheria,	2,262	45·51 „	13 16 10
Encephalitis Lethargica,	8	224·00 „	68 2 10
Poliomyelitis,... ..	14	88·64 „	26 19 3
Trachoma,	—	—	—
Acute Primary Pneumonia and Influenzal-			
Pneumonia,	3,562	29·12 „	8 17 2
Tropical Diseases,	67	22·00 „	6 13 10
Measles and German Measles,	222	49·55 „	15 1 5
Whooping-Cough,	899	37·26 „	11 6 8
Phthisis,	1,431	146·48 „	44 11 1
Non-Pulmonary Tuberculosis,	669	349·67 „	106 7 2
*Other Infectious Diseases,	1,229	26·57 „	8 1 8
†All other Diseases,	1,170	24·10 „	7 6 7
	<u>17,124</u>		

* Includes Erysipelas, Cerebro-spinal Fever, Chickenpox, Influenza &c.

† Includes Nursing Mothers, also Persons sent in by mistaken diagnosis.

TABLE XXII.—GLASGOW.—STATUTORY DECLARATIONS OF CONSCIENTIOUS
OBJECTION TO VACCINATION IN EACH WARD DURING 1931.

MUNICIPAL WARDS.	Conscientious Objections Lodged.	Percentage of Births Registered.		
		1931.	1930.	1929.
1. Shettleston and Tollcross	282	29	24	25
2. Parkhead,	266	28	27	23
3. Dalmarnock,	335	34	29	29
4. Calton,	234	27	23	25
5. Mile-end,	192	30	24	24
6. Whitevale,	154	29	29	24
7. Dennistoun,	114	27	19	15
8. Provan,	291	28	23	23
9. Cowlairs,	172	39	35	41
10. Springburn,	224	45	39	35
11. Townhead,	169	29	34	27
12. Exchange,	95	26	24	25
13. Blythswood,	43	21	16	16
14. Anderston,	138	23	21	17
15. Sandyford,	96	24	19	17
16. Park,	37	19	18	15
17. Cowcaddens,	247	25	23	20
18. Woodside,	201	25	20	18
19. Ruchill,	256	29	28	26
20. North Kelvin,	128	30	24	22
21. Maryhill,	144	26	25	24
22. Kelvinside,	20	14	8	14
23. Partick (East),	125	24	25	18
24. „ (West),	145	33	24	27
25. Whiteinch,	377	35	25	27
26. Hutchesontown,	398	35	34	31
27. Gorbals,	351	30	26	24
28. Kingston,	275	35	31	32
29. Kinning Park,	283	34	27	33
30. Govan,	403	46	45	40
31. Fairfield,	299	50	48	48
32. Pollokshields,	74	28	23	22
33. Camphill,	40	20	21	17
34. Pollokshaws,	122	39	33	48
35. Govanhill,	213	38	30	28
36. Langside,	24	15	25	13
37. Cathcart,	68	20	24	18
Institutions, &c.,	9	—	—	—
	7,044	31	27	26

TABLE XXIII.—GENERAL SANITARY OPERATIONS.—(a) FOOD AND DRUGS, &c.

	Year.	1931.	1930.	1929.
I. Dairies.				
Registered during year,		238	221	216
Removed from Register,		195	207	199
On Register at 31st Dec.,		1,733	1,690	1,676
Number of Inspections,		23,142	23,271	23,322
Contraventions of Orders or Regulations,		29	19	22
Prosecutions for same,		22	11	14
Repairs or Improvements effected,		24	19	12
II. Dealers in Ice Cream.				
Registered during the year,		40	65	65
Removed from Register,		62	78	49
On Register at 31st Dec.,		583	605	618
Number of Inspections,		8,954	9,389	9,734
Contraventions of Orders or Regulations,		7	2	—
Prosecutions for same,		—	1	—
Repairs or Improvements effected,		4	3	5
III. Byres for Milch Cows.				
Number of Dairy Byres as at 31st Dec.,		53	53	53
“ Cows licensed for,		1,194	1,217	1,217
Average number kept,		996	1,025	1,035
Number of Inspections,		490	550	453
IV. Unwholesome Food.				
Number of Inspections,		13,061	13,419	13,418
“ Lots dealt with,		30	37	54
Nature of Food destroyed at Inspector's instance with Owner's consent—				
Cheese, (lbs.)		—	—	210
Canned Food (various)		—	—	1,688
Fruit (Dried and Soft),		24,052	4,666	24,296
Pork (Cured),		—	289	168
Pork and Brawn,		—	—	36
Pork (Fresh),		307	—	—
Milk (Condensed),		28	—	—
Pickles,		—	—	24
Liquorice Root,		112	—	—
Vegetables,		31,080	16,148	58,006
Eggs (Canned and Frozen),		51	44	22
“ (in shell),		—	—	1,356
Chestnuts,		—	4,704	—
Potted Meat,		—	66	—
Sauce, (Quart bots.)		—	—	30
Prosecutions,		—	—	—

TABLE XXIII.—*Continued.*

	Year.	1931.	1930.	1929.
V. Food and Drugs (Adulteration) Act.				
Informal Samples analysed,	3,789	3,913	3,875
Statutory Samples analysed,	1,332	1,355	1,336
" found non-genuine,	66	68	71
Proceedings instituted,	40	54	57
Number of Convictions,	38	54	51
Amount of Fines imposed,	£134 15/9	£210	£223 2/-
Number dismissed or found "Not proven,"	—	—	1
" deserted <i>simpliciter</i> ,	1	—	—
" withdrawn and Expenses paid	1	—	5
Amount of Expenses paid,	£2	—	£7 17/6
Prosecutions for Margarine offences,	1	—	7
Fines and Expenses imposed,	£3 5/9	—	£16
Non-convictions,	—	—	—
Obstruction,	—	—	—
Fines imposed,	—	—	—
Vending Milk without name and address being on vessel,	—	—	—
Number of Convictions,	—	—	—
Amount of Fines,	—	—	—
Refusal to Sell,	—	—	—
Number of Convictions,	—	—	—
Amount of Fines,	—	—	—
Vi. The Sale of Horse-Flesh Regulation Act, 1889.				
Number of premises in which Horse-flesh is sold,	—	—	—
Prosecutions for contravention of Act,	—	—	—
Fines imposed,	—	—	—
VII. Merchandise Marks Acts and Orders.				
Number of Prosecutions,	12	16	10
" Convictions,	12	14	10
Amount of Fines imposed,	£14	£31	£57
VIII. Fish and Game Inspection.				
Under the Glasgow Police Amendment Act, 1890.				
Number of Packages of Fish, Game, Poultry, and Rabbits passed through Fish Market,	1,939,789	1,855,056	1,704,115
" Inspections of Fish Shops, Restaurants, and Hawkers' Barrows and Carts,	1,231	1,176	1,367
" Nuisances discovered therein,	—	—	—
Fish " and Game destroyed with consent—				
Fresh Fish, (lbs.)	...	88,671	119,059	94,969
Cured "	13,571	15,504	22,872
Shell "	982	770	144
Crabs and Lobsters,	438	202	36
Venison,	1,088	1,404	234
Rabbits,	5,041	3,274	2,696
Poultry and Game,	1,446	2,370	2,444
Eggs,	—	50	68

TABLE XXIII.—Continued.

(b) AIR PURIFICATION.

	Year.	1931.	1930.	1929.
Smoke Prevention.				
Glasgow Police (Further Powers) Act, 1892, Sec. 31, and Motor Vehicles (Construction and Use) Regulations, 1931.				
Number of Inspections of Boiler and other Furnaces,		1,307	1,436	1,372
„ Observations of Chimneys,		28,344	28,464	28,893
„ Intimations of Excess Smoke given, ...		342	342	359
„ Warning Notices to those contravening the Act,		20	16	19
„ Prosecutions in Police Courts,		48	35	24
„ Convictions,		40	31	20
Amount of Fines imposed,		£53 15/-	£44 10/6	£32 1/-
Number of Prosecutions withheld on receiving a promise from Offenders to improve the Furnace Plant,		3	—	4
„ Prosecutions withheld on account of accidents to Furnace Plant, or regular Fireman temporarily off duty,		1	—	1
„ New Steam Boilers installed to give increased power,		14	20	8
„ Mechanical Stokers fitted to Steam Boiler Furnaces,		18	5	1
„ Steam Boiler Furnaces fitted with Smoke-preventing Appliances,		3	9	5
„ Furnaces in which Anthracite, Coke, or other non-bituminous Fuel has been substituted for ordinary Coal,		20	20	15
„ Furnaces adapted for Smokeless Combustion of Oil Fuel,		2	1	1
„ Steam Boilers replaced by Electric Motors (using Corporation power),		11	3	5
„ Furnaces formerly Coal-fired, reconstructed for use of Corporation gas,		1	—	—
„ New Chimneys erected or existing Chimneys heightened to give increased draught and carry gases higher,		15	14	6
„ Improvements to Furnaces not coming under any of the above headings,		14	6	4
Spraying Dungsteads, Ashpits and Privies.				
Total number of Dungsteads Sprayed from May till September,		15,216	17,080	18,745
Total Outlay for Wages, Plant, and Material,		£329	£480	£474

TABLE XXIII.—*Continued.*

(c) OPERATIONS OF SANITARY SECTION.

1 (a) Nuisances.	Central.	Northern.	Eastern.	South-Eastern.	South-Western.	City.	
INSPECTIONS made—						1931	1930
Nuisances,	128,610	132,491	182,373	154,086	168,975	766,535	799,393
Underground Dwellings, ...	—	—	—	—	—	—	—
Water Storage Cisterns, ...	291	2,128	47	445	103	3,014	2,044
Limewashings,	5,492	3,022	7,304	2,641	12,202	30,661	29,413
Stair Cleaning,	26,870	7,759	22,817	3,484	24,084	85,014	78,557
Drain Testing,	16,264	12,392	5,594	3,557	6,254	44,061	50,282
Total,	177,527	157,792	218,135	164,213	211,618	929,285	959,689
Nuisances removed or remedied, Consisting of—	9,423	10,670	13,179	6,890	14,768	54,930	61,435
Apartments, Lobbies, or W.C.'s, with insufficient light or ventilation, or otherwise defective in construction,	29	1	1	4	31	66	22
Defective Chimneys causing nuisance,	162	95	115	41	180	593	609
Disrepair or dampness in Dwelling-houses,	1,332	760	1,971	923	2,508	7,494	7,270
Offensive smells from Drains, or other reasonable grounds — smoke test,	149	211	119	27	82	588	800
Drains, Conductors, Soil-pipes, or Rhones choked or defective, Sanitary Fittings choked or defective,	3,463	4,705	5,152	3,279	5,340	21,939	21,871
Dirty Houses and Bedding, ...	1,071	796	1,194	448	2,151	5,660	6,526
Dirty Closets, Stairs, &c. (daily and bi-weekly cleansing), ...	253	716	555	393	162	2,079	2,080
Houses overcrowded,	547	568	1,279	474	1,896	4,764	4,709
Walls of Closets, Staircases, Lobbies, W.C.'s, and external walls of Houses, filthy (lime-washing),	—	—	2	1	2	5	3
Animals or Poultry kept so as to be a nuisance,	1,620	1,893	2,143	776	1,487	7,919	7,184
Accumulations of Garbage or Rubbish,	1	1	—	6	12	20	14
Smells from Decaying Animal Matter or other cause,	494	142	257	232	475	1,600	1,932
Stagnant Water,	32	13	10	16	18	89	106
Premises infested with Rats or other vermin,	11	8	2	9	65	95	122
Sink accommodation and Water Supply required,	17	65	54	39	60	235	193
Water-Closet accommodation required,	2	—	—	—	4	6	7
Water Storage Cisterns dirty, uncovered or unventilated, ...	7	2	4	27	8	48	51
Water Supply Pipes defective—tenants without water, ...	104	606	140	137	—	987	967
	129	88	181	58	287	743	798

TABLE XXIII.—*Continued.*(c) OPERATIONS OF SANITARY SECTION—*Continued.*

	Central.	Northern.	Eastern.	South- Eastern.	South- Western.	City.	
						1931	1930
Pit Shaft without adequate protection,	—	—	—	—	—	—	2
Reports to Gas Manager, ...	8	3	1	—	—	12	6
„ Master of Works, ...	317	297	481	298	1,339	—	2,971
„ Superintendent of Cleansing, ...	12	3	10	—	140	165	208
„ Water Engineer, ...	559	347	443	308	1,155	2,812	2,984
Prosecutions—Sheriff Court, ...	2	—	—	—	—	2	3
„ Police Court, ...	9	2	5	6	5	27	54
Number Successful, ...	11	2	5	6	5	29	55
Amount of Fines, ...	£7	£8/3/6	12/6	£3/8/6	£2/1/0	£21/5/6	£31/5/6
Number of Rotation Cards for Cleansing of Common Stairs, Lobbies, and W.C.'s served on Tenants,	1,761	632	1,955	912	1,848	7,108	7,307
1. (b) Drain Testing.							
Number of Applications for satisfaction of Dean of Guild Court,	370	670	317	2,544	223	4,124	4,171
Number of first Applications to old Tenements or Systems, ...	183	211	124	28	104	650	873
Number of these found more or less defective,	164	206	98	18	84	570	794
Subsequent applications to old Tenements or Systems, ...	182	306	89	42	73	692	865
2. Common Lodging Houses.							
Number measured and registered	—	—	—	—	—	—	—
Total number now on register, ...	13	6	11	2	4	36	37
With accommodation for ...	3,119	2,111	2,856	791	1,756	10,633	10,670
Number of inspections by day, ...	539	100	328	18	255	1,240	1,704
Number of inspections by night, ...	48	6	21	4	4	83	107
Number of irregularities, ...	53	4	27	5	42	131	105
Number of prosecutions, ...	—	—	—	—	—	—	—
3. Boarding Houses for Emigrants and Seamen.							
Number measured and registered	1	—	—	—	—	1	—
Total number now on register, ...	10	—	—	—	1	11	11
With accommodation for ...	441	—	—	—	53	494	494
Number of inspections by day, ...	446	—	—	—	29	475	614
Number of inspections by night, ...	44	—	—	—	—	44	55
Number of irregularities, ...	—	—	—	—	—	—	—
Number of prosecutions, ...	—	—	—	—	—	—	—

TABLE XXIII.—*Continued.*(c) OPERATIONS OF SANITARY SECTION—*Continued.*

	Central.	Northern.	Eastern.	South-Eastern.	South-Western.	City.	
4. Houses-Let-in-Lodgings.						1931	1930
Number measured and registered	3	5	—	—	—	3	15
Total number now on register,	11	17	8	13	12	61	60
Number of inspections by day,	102	99	23	57	10	291	297
Number of inspections by night,	53	13	—	—	12	78	85
Number of irregularities, ...	—	3	—	—	—	3	4
Number of prosecutions, ...	—	—	—	—	—	—	—
5. Farmed-out Houses.							
Number measured and registered	11	—	—	—	—	11	—
Total number now on register,	460	34	123	—	12	629	748
Number of inspections by day,	3,348	118	2,865	321	274	6,926	6,815
Number of inspections by night,	1,800	37	186	—	12	2,035	3,009
Number of irregularities, ...	635	1	98	4	1	739	665
Number of prosecutions, ...	—	—	—	—	—	—	5
Number successful, ...	—	—	—	—	—	—	5
Amount of fines, ...	—	—	—	—	—	—	£1/10
6. Ticketed Houses.							
Number ticketed for first time,	—	—	—	—	—	—	—
Total number now on register,	2,324	4,936	2,846	1,685	1,297	13,088	14,258
Number of visits by day, ...	1,421	—	10	—	86	1,517	54
Number of inspections by night,	10,350	9,471	1,568	3,134	2,592	27,115	36,228
Number of cases of Overcrowding found and warned,	1,107	1,519	223	234	249	3,332	4,801
Number of prosecutions, ...	—	—	—	—	—	—	—
Cubic feet of space in worst cases of Overcrowding, instead of 400, only, ...	134, 140, 146	172, 175, 185	155, 157, 163	129, 143,	120, 160, 213, 240,	—	—
Number of cases of Overcrowding in houses under 900 cubic feet of space, ...	6	28	1	14	2	51	146
7. Tents and Vans.							
Number of inspections, ...	144	29	614	23	78	888	3,196
Number of irregularities, ...	6	—	8	—	—	14	80
Number of prosecutions, ...	—	—	11	—	—	11	—
8. Workshops and Workplaces (excluding Bakehouses).							
Number measured and registered	130	35	22	19	15	221	194
Total number now on register,	1,504	508	462	502	484	3,460	3,614
Number of inspections, ...	10,008	1,144	2,850	1,455	1,457	16,914	18,604
Number found dirty, ...	155	36	48	21	42	302	345
Number found Overcrowded, ...	1	—	—	—	—	1	—
Number found defective in light or ventilation, ...	11	—	—	—	—	11	14
Number found with inadequate or defective W.C. or sink accommodation, ...	8	1	3	1	8	21	29
Number of other nuisances, ...	237	6	33	5	18	299	372
Number of prosecutions, ...	1	—	—	—	—	1	1

TABLE XXIII.—*Continued.*(c) OPERATIONS OF SANITARY SECTION—*Continued.*

	Central.	Northern.	Eastern.	South-Eastern.	South-Western.	City.	
9. Bakehouses.						1931	1930
Registered during year, ...	8	2	7	3	2	22	30
Total number now on register, ...	97	78	108	107	101	491	524
Number of inspections, ...	574	253	682	460	267	2,236	2,453
Number found dirty, ...	48	29	33	13	34	157	127
Number of other nuisances, ...	26	6	10	7	24	73	77
Number of prosecutions, ...	—	—	—	—	—	—	—
10. Homeworkers' Dwellings.							
Total number now on register, ...	29	90	67	46	28	260	373
Number of inspections, ...	94	103	327	78	35	637	843
Number found dirty, ...	—	—	—	—	—	—	1
11. Piggeries.							
Total number now on register, ...	9	24	8	2	6	49	50
Number of inspections, ...	32	77	84	15	6	214	276
Number found dirty, ...	1	12	3	1	—	17	19
Number of other nuisances, ...	1	—	2	—	—	3	2
Number of prosecutions, ...	—	—	—	—	—	—	—
12. Offensive Trades.							
Total number now on register, ...	3	14	43	—	9	69	69
Number of inspections, ...	25	60	963	—	116	1,164	1,136
Number of irregularities, ...	—	—	56	—	3	59	70
Number of prosecutions, ...	—	—	—	—	—	—	—
13. Rag Flock Act, 1911.							
Total number of visits, ...	32	14	—	—	—	46	147
Samples submitted for analysis, ...	20	10	—	—	—	30	39
Certified not to conform to standard, ...	—	1	—	—	—	1	—
Number of prosecutions, ...	—	—	—	—	—	—	—
Number of convictions, ...	—	—	—	—	—	—	—
14. Brokers' Premises.							
Total number of visits, ...	83	12	127	12	8	242	427
15. Infectious Diseases.							
Total number of visits, ...	23,961	25,862	26,407	20,789	12,879	109,898	107,158

TABLE XXIII.—*Continued.*(c) OPERATIONS OF SANITARY SECTION—*Continued*

	Central.	Northern.	Eastern.	South-Eastern.	South-Western.	City.	
16. Housing Acts.						1931	1930
Total number of visits, ...	2,102	2,495	9,044	1,339	767	15,747	35,684
17. Work of Female Inspectors.							
Under the Glasgow Corporation (Police) Order, 1904—							
(a) Verminous Children.							
Number of visits to schools, ...	221	314	535	487	317	1,874	1,686
Number of children submitted for inspection, ...	4,219	4,462	13,045	6,480	6,478	34,684	34,250
Number of children found infested,	46	60	82	424	208	820	696
Number of children found infected,	435	1,105	1,149	112	884	3,685	3,446
Number of children found with fleas,	59	223	87	156	37	562	658
Number of children found dirty,	133	472	399	225	56	1,285	1,170
Number of written notices, ...	49	60	76	917	282	1,384	1,285
Number of children cleaned by Guardians,	682	1,835	1,546	832	1,080	5,975	5,995
Number of children cleaned by officers,	—	—	4	—	4	8	—
(b) Homes of Verminous Children.							
Number of houses inspected, ...	1,185	1,456	1,492	707	1,462	6,302	6,329
Number of houses in which lodgers were found, ...	44	18	1	25	97	185	117
Number of houses found dirty, ...	12	63	43	71	8	197	165
Number of houses with dirty bedding,	14	39	49	81	8	191	140
Number of written notices, ...	—	2	56	—	1	59	72
Number of re-inspections, ...	29	147	202	152	21	551	511
Number of houses found cleaned,	9	46	43	72	14	184	146
Number of bedding found cleaned,	13	30	44	88	9	184	123

TABLE XXIII.—*Continued.*(c) OPERATIONS OF SANITARY SECTION—*Continued.*

	Central	Northern.	Eastern.	South-Eastern.	South-Western.	City.	
(c) House-to-House Visitation.						1931	1930
Number of houses visited first time,	26,982	9,942	6,520	9,667	4,521	57,632	54,737
Number of houses in which lodgers were found, ...	1,739	545	150	843	401	3,678	2,979
Number of houses found dirty, ...	129	403	170	131	19	852	935
Number of houses with dirty bedding,	83	112	40	86	17	338	290
Number of houses—Written notices,	23	16	89	3	12	143	283
Number of houses—Re-visits, ...	344	1,212	248	311	37	2,152	1,947
Number of houses found cleaned,	127	401	181	145	26	880	973
Number of houses—Bedding found cleaned,	79	106	41	93	22	341	306
(d) Re-housing Scheme Visitation.							
Number of houses visited first time,	1,487	13,345	13,863	4,982	811	34,488	27,138
Number of houses in which lodgers were found, ...	89	500	128	14	—	731	522
Number of houses found clean, ...	1,350	8,893	8,632	4,594	786	24,255	18,820
Number of houses found fair, ...	132	3,984	4,502	278	20	8,916	7,007
Number of houses found unsatisfactory,	4	450	699	97	5	1,255	1,109
Number of houses found dirty, ...	1	18	30	13	—	62	102
Number of houses with dirty bedding,	1	12	—	6	—	19	44
Number of written notices, ...	2	6	30	—	—	38	93
Number of re-visits, ...	1	840	749	277	—	1,867	1,967
Number of houses found cleaned,	1	483	690	70	—	1,244	1,224
Number of bedding found cleaned,	1	15	5	—	—	—	60
(e) Other Work.							
Number of nuisances reported by Female Inspectors, ...	—	16	476	322	32	846	724
Number of infectious disease cases reported by Female Inspectors,	—	4	9	43	1	57	7

TABLE XXIV.—GLASGOW.—POPULATION; BIRTHS AND DEATHS; BIRTH-RATES AND DEATH-RATES PER 1,000; ALSO DEATHS UNDER 1 YEAR, AND DEATH-RATES PER 1,000 BIRTHS SINCE 1860.

Year.	Population.	Births.	Deaths.	Birth-rate per 1,000.	Death-rate per 1,000.	Deaths under 1 Year.	
						Number.	Rate per 1,000 Births.
1860†	389,843	15,943	12,436	40·8	31·9	2,905	182
1861	397,673	16,537	10,936	41·6	27·5	2,544	154
1862	405,789	16,400	11,565	40·4	28·5	2,562	156
1863	413,944	16,986	13,329	41·0	32·2	2,774	163
1864	420,738	17,411	13,674	41·4	32·5	3,051	175
1865	428,123	17,956	13,914	41·9	32·5	3,097	173
1866	437,850	18,288	12,829	41·8	29·3	2,905	159
1867	446,028	18,347	12,578	41·1	28·2	2,895	158
1868	455,000	18,607	13,832	40·9	30·4	3,127	168
1869	464,332	18,495	15,648	39·8	33·7	3,411	184
1870	471,453	19,355	13,955	41·1	29·6	2,991	155
1871	491,900	18,867	15,790	38·4	32·1	3,608	191
1872	494,824	20,158	14,053	40·7	28·4	3,198	159
1873	494,847	19,487	14,499	39·4	29·3	3,255	167
1874	498,270	20,039	15,845	40·2	31·8	3,240	162
1875	499,480	20,825	15,384	41·7	30·8	3,388	163
1876	502,299	20,981	13,763	41·7	27·4	3,166	151
1877	504,487	21,124	13,823	41·9	27·4	3,106	147
1878	507,420	20,622	14,157	40·6	27·9	3,285	159
1879	508,048	19,751	12,498	38·8	24·6	2,504	127
1880	509,732	18,912	13,304	37·1	26·1	2,842	150
1881	512,034	19,106	12,916	37·3	25·2	2,745	144
1882	517,904	19,735	13,046	38·1	25·2	2,959	150
1883	523,154	19,911	14,577	38·1	27·9	3,091	155
1884	528,459	20,557	13,942	38·9	26·4	3,094	151
1885	533,817	19,861	13,492	37·2	25·3	3,100	156
1886	539,231	19,862	13,104	36·8	24·3	2,786	140
1887	544,700	19,328	12,135	35·5	22·3	2,676	138
1888	550,226	19,309	11,681	35·1	21·2	2,560	133
1889	555,808	19,503	13,139	35·1	23·6	3,008	154
1890	561,447	19,279	13,374	34·3	23·8	2,880	149
1891	567,143	19,857	14,324	35·0	25·3	2,946	148
1892	669,059*	22,815	15,218	34·1	22·7	3,168	139
1893	677,883	23,173	15,798	34·2	23·3	3,649	157
1894	686,820	22,644	13,673	34·0	19·9	2,937	130
1895	695,876	22,803	16,344	32·8	23·5	3,538	155
1896	705,052	24,029	14,385	34·1	20·4	3,278	136
1897	714,919	23,880	15,727	33·4	22·0	3,826	160
1898	724,349	24,262	15,333	33·5	21·2	3,792	156
1899	733,903	24,249	15,828	33·0	21·6	3,696	152
1900	743,969	24,362	16,393	32·7	22·0	3,778	153
1901	761,925	24,206	16,197	31·8	21·2	3,607	149
1902	762,789	24,722	15,532	32·4	20·4	3,206	129

* Extended City.

† For earlier years, see Report for 1910, Table liii.

TABLE XXIV.—*Continued.*

Year.	Population.	Births.	Deaths.	Birth-rate per 1,000.	Death-rate per 1,000.	Deaths under 1 Year.	
						Number.	Rate per 1,000 Births.
1903	763,654	25,135	15,073	32.9	19.7	3,663	146
1904	764,521	24,754	15,414	32.4	20.2	3,606	146
1905	765,389	24,316	14,460	31.8	18.9	3,195	131
1906	780,192*	24,560	14,889	31.5	19.1	3,223	131
1907	781,080	24,006	15,659	30.7	20.0	3,116	130
1908	781,969	23,915	15,265	30.6	19.5	3,284	137
1909	782,860	23,140	15,242	29.6	19.5	3,073	133
1910	783,785	22,222	13,395	28.4	17.1	2,694	121
1911	784,680	21,755	13,899	27.7	17.7	3,016	139
1912	785,600	22,044	13,797	28.1	17.6	2,740	124
1913†	1,021,789*	28,688	17,693	28.1	17.3	3,706	129
1914	1,028,440	29,462	17,522	28.6	17.0	3,913	133
1915	1,035,091	27,943	20,159	27.0	19.5	4,007	143
1916	1,041,742	27,094	16,601	26.0	15.9	2,996	111
1917	1,048,393	24,030	16,691	22.9	15.9	3,089	129
1918	1,055,044	23,524	18,362	22.3	17.4	2,660	113
1919	1,061,695	25,835	18,237	24.3	17.2	2,937	114
1920	1,068,346	32,626	16,765	31.5	15.7	3,477	107
1921	1,075,000	29,712	15,625	27.6	14.5	3,138	106
1922	1,074,607	28,298	17,850	26.3	16.6	3,401	120
1923	1,074,215	26,710	14,875	24.9	13.8	2,388	89
1924	1,073,822	25,330	16,868	23.6	15.7	3,005	119
1925	1,073,429	25,416	15,336	23.7	14.3	2,591	102
1926	1,090,380*	24,541	15,731	22.7	14.6	2,548	104
1927	1,089,988	23,578	15,439	21.6	14.2	2,527	107
1928	1,089,595	23,649	15,701	21.7	14.4	2,525	107
1929	1,089,202	22,799	17,760	20.9	16.3	2,438	107
1930	1,088,810	23,322	15,455	21.4	14.2	2,355	101
1931	1,088,461	22,926	15,505	21.1	14.2	2,397	105

* Extended City.

† Births and Deaths from 1913 are corrected for transfers.

PART II

**FEVER AND TUBERCULOSIS
HOSPITALS AND SANATORIA**

ANNUAL REPORTS

FOR THE YEAR

1931

PART II

FEVER AND TUBERCULOSIS HOSPITALS.

The most important feature of the year from an epidemiological point of view was the high incidence of scarlet fever. During the autumnal rise, it early became necessary to endeavour to reserve hospital beds for cases occurring in the small and overcrowded house. Fortunately, the demand for pneumonia was comparatively light, owing to the mild winter weather, while measles was not unduly severe. It was therefore found possible to devote over 800 beds to scarlet fever, but this was in fact inadequate, and for the first time in the history of scarlet fever, waiting-lists had to be established.

As regards the infectious disease hospitals, the whole position has been before the Committee on Health, on whose instructions the following report has been prepared.

ACCOMMODATION FOR INFECTIOUS DISEASES.

The following memorandum is prepared in compliance with the instruction of the Corporation as contained in the minute of the Committee on Health, of 12th August, 1931 (Print No. 21, page 2469), that the Medical Officer of Health report on (a) the existing accommodation in the City for the treatment of infectious diseases; (b) the necessity for the provision of additional accommodation; and (c) the cost of the proposed new hospital and of the equipment and administration thereof.

Existing Accommodation.—For the isolation and treatment of patients suffering from infectious diseases, other than tuberculosis, beds are at present available in the following hospitals:—

Belvidere Hospital,	...	...	...	...	642 beds.
Ruchill	„	...	...	...	542 „
Shieldhall	„	...	...	...	100 „
Knightswood	„	...	...	...	170 „
Robroyston	„	(Puerperal Ward),	...	...	56 „
					1,510 „

In addition, the Corporation has a part interest in Lightburn, Darnley, and Blawarthill Joint Hospitals—30 to 40 beds in all—which also serve districts beyond the City boundary. Cases from the Burgh of Rutherglen are treated in Belvidere Hospital, but it will simplify discussion if the number of beds required for these patients is regarded as a set-off against Glasgow cases treated in the three Joint Hospitals.

In addition, emergency accommodation for smallpox is reserved in two pavilions in Robroyston Auxiliary Hospital, and in the event of an epidemic extra accommodation would be obtained by the evacuation of the tuberculosis wards in the auxiliary hospital, and, if necessary, of the wards in the main hospital. Robroyston Hospital thus serves two functions. It is primarily the smallpox hospital for the City, but is utilised for the purpose of treating tuberculosis and puerperal fever, while one of its pavilions has been in whole or in part devoted to the treatment of pneumonia, especially during the winter pressure on accommodation.

Growth of Accommodation.—Table A (a copy of Table XX. in the Appendix to Part I. of this report—see page 34), shows the growth of hospital accommodation for infectious diseases (excluding tuberculosis) over the whole period since 1865. The numbers of beds given in the table are determined on what is known as an “adult” basis, that is to say, on the assumption that 2,000 cubic feet of air space is allowed for each patient.

Expressed as a ratio per 1,000 of the population, the highest point was reached in 1901-05 when the figure was 1.6 per 1,000. That ratio, however, must be regarded as unusual, as there was included in the total number of beds the accommodation in the old hospital in Parliamentary Road. The closure of this hospital had been determined on when Ruchill was opened in 1900, but owing to a widespread epidemic of smallpox which occurred in 1900-01, it was continued in use till November of the latter year, although it was not demolished until 1905.

In succeeding years the table shows almost uniformly a standard of 1.3 beds per 1,000 of the population, the needs of the increased population having been partly met by the inclusion of other hospitals or the addition of beds to existing institutions. The table further shows that there were 220 beds in the Smallpox Hospital at Belvidere, consisting of temporary wooden wards, which since 1923 have been included with “fever” beds. It was the practice, however, to use the smallpox wards at Belvidere for other diseases (principally scarlet fever and chickenpox) whenever required, so that it is proper to include these beds in the total for all fevers, although, for reasons which will be explained later, it is impossible to use part of this accommodation.

Since the extension of the City boundaries in 1912 the total accommodation provided by the Corporation has been increased from 1,333 to 1,510 beds, equivalent to 1.4 beds per 1,000 of the population. These additions comprise the following:—at Knightswood Hospital by reconstruction and extension there have been added 89 beds in all (33 beds in 1923, 20 in 1925, and 36 in 1929); at Belvidere Hospital 32 beds were provided by the construction of an observation ward which was opened in January, 1931; the remainder, 56 beds, are in respect of a ward in Robroyston Hospital which has been used for puerperal fever since October, 1930, in order to meet the increased demand for treatment of these cases. These additions to the fever hospital accommodation thus amount to 177 beds.

During the period since 1912 there have been important changes in hospital policy towards the diseases for which the present hospital accommodation is required, and there follows a detailed consideration of the volume of infectious disease and its types in relation to the hospital position.

Number and Nature of Cases Treated.—Table B in the appendix gives the total numbers of patients treated in Corporation hospitals between the years 1913-14 and 1930-31, and shows the variations which occur from year to year. The growth of the demand for accommodation since 1913-14, the first year in which the present four hospitals were in use for the needs of the City, is shown in the following summary:—

			Average annual number of cases treated.	Number of cases per "Adult" bed.
1913-14 to 1918-19,	...	...	8,272	8.0
1919-20 to 1924-25,	...	...	10,793	8.3
1925-26 to 1930-31,	...	...	13,966	9.8

Among the individual diseases scarlet fever has maintained an almost constant demand at about 3,000 cases per annum, with the exception of the years 1913-14 and 1926-27, when the numbers were over 4,000, and the years 1914-15, 1915-16, and 1930-31 when over 5,000 cases were treated in the various hospitals. These facts illustrate the periodic rise and fall of the epidemic curve of scarlet fever over a considerable period of years. Diphtheria was uniformly below 2,000 until 1925-26, but has been above that figure in every year since then.

Measles, from 1913 to 1920, occurred in annual epidemics, but thereafter reverted to its normal biennial wave, with an increased demand on accommodation during alternate years. The demand on beds for measles is variable, and depends on such factors as its severity and the extent to which it is associated with pneumonia, features which may alter from year to year. Again, the pressure is apt to occur in concentrated form during the winter, or, as was experienced this year, in a more spread-out and manageable form. The accommodation required for whooping-cough and its complications has remained fairly uniform throughout the period.

Most important, however, is the demand on hospital accommodation for patients suffering from pneumonia. This disease became notifiable in the year 1919, and the number of admissions has grown from about 1,000 in that year to more than 3,500 in 1930-31. Admissions reached 4,250 in 1928-29. The respiratory diseases often occasion a very heavy concentrated demand during influenza outbreaks or foggy weather. Among the other diseases puerperal fever should receive special mention, as its increased numbers in recent years have necessitated the utilisation of a pavilion taken from the tuberculosis accommodation at Robroyston Hospital.

Maximum and Minimum Pressure on Accommodation.—The demand for accommodation fluctuates, of course, with the seasonal incidence

of disease, and the maximum demand usually occurs in winter. During recent years peak numbers have been reached as follows :—

Year	1923-24,	...	On 8th February, 1924,	...	1,566 patients.
"	1924-25,	...	" 16th December, 1924,	...	1,704 "
"	1925-26,	...	" 1st December, 1925,	...	1,785 "
"	1926-27,	...	" 10th December, 1926,	...	1,921 "
"	1927-28,	...	" 28th November, 1927,	...	1,847 "
"	1928-29,	...	" 25th January, 1929,	...	1,672 "
"	1929-30,	...	" 9th February, 1930,	...	1,707 "
"	1930-31,	...	" 3rd November, 1930,	...	1,848 "
"	1931 to date,	...	" 14th December, 1931,	...	1,932 "

It will be observed from these figures that each year there occurs a period during winter, when, for one reason or another, the available hospital beds are very fully utilised and are, indeed, taxed to the utmost limit as a normal occurrence. The several infectious diseases contribute to this result in varying degree according to their epidemic prevalence. The volume of the different diseases which comprise these maximum figures alters from year to year, as is shown by the data given in the next paragraph.

Table C. in the appendix gives the superficial area of accommodation (in square feet) which has been taken up from time to time for the treatment of each disease at the dates of maximum pressure as shown above, and may be summarised as follows :—

Disease.	Minimum area (square feet).	Maximum area (square feet).
Scarlet fever,	53,192	76,054
Diphtheria,	27,384	38,417
Measles,	—	29,344
Whooping-cough,	—	16,036
Pneumonia,	25,650	58,402
Other diseases,	17,959	32,221
Observation wards,	15,180	21,703

This table has been inserted to show the extreme variations which occur in the epidemic situation, based on past experience, and the difficulty of making accurate forecasts as regards administrative requirements. As may also be observed from Table C the maximum demands do not occur at the same time for all diseases, and it is therefore unnecessary to make provision on the basis of maximum prevalence. The proper provision lies between the minimum and maximum figures quoted. The figures given above afford further evidence of the effect on hospital accommodation produced by the inclusion of pneumonia among the notifiable diseases.

Existing Accommodation in relation to Average Demand.—Actual experience indicates that the increased demand on accommodation has been met only partially by the added beds provided since 1912, and recurring pressure has been apparent in the past ten years during certain heavy periods in the winter months. It has been customary

to meet this situation by the temporary evacuation of tuberculosis wards in Knightswood and Robroyston Hospitals, and also to resort to some degree of overcrowding in hospital wards generally. Waiting lists comprising the more urgent cases, have been in operation chiefly as regards pneumonia or the pneumonic complications of other infections.

As regards temporary accommodation diverted from tuberculosis, a pavilion in Robroyston is almost continuously devoted to pneumonia, and a ward at Knightswood for about six months each year. In 1925-26 two pavilions at Robroyston were required. Overcrowding in fever hospital wards especially is to be avoided in the interests of the patients. In the Corporation hospitals the permissible standard of floor space per bed has been fixed, in view of the continued pressure, at the low figure of 80 square feet for cots and 120 square feet for adult beds. These are lower standards than are generally applied, and they have been adopted temporarily as the lowest figures compatible with reasonable safety and efficiency. It happens, however, that patients have to be admitted in excess of the numbers allowed on this basis.

The following table shows the number of cases in excess of the fever accommodation on the foregoing basis at various periods of maximum pressure:—

Date.	Number of temporary beds.	Number of patients in hospital wards in excess of standard.	Number of cases on waiting list.	Total.
1st December, 1925, ...	134	67	23	224
10th December, 1926.	31	111	6	148
28th November, 1927,	53	85	30	168
25th January, 1929, ...	56	94	117	267
9th February, 1930, ...	87	51	4	142
3rd November, 1930,	—	81	59	140
14th December, 1931,	87	76	154	317

Those included in the waiting list comprise only those patients who were regarded after investigation as urgently requiring hospital treatment.

It is apparent that facilities for the treatment of pneumonia since 1919 have been mainly responsible for the increasing pressure on accommodation. It has been shown, for instance, that the total superficial ward area requisitioned has varied between 25,650 square feet and 58,402 square feet, which is equivalent in beds, based on 120 square feet per bed, to between 214 and 487 beds. This represents a measure of the extra pressure due to one disease which has had to be met, for which 144 beds have become available since 1923, leaving a deficiency of from 70 to 343 beds.

From the foregoing considerations it would appear that, measuring the effective demand over the past few years, the deficiency of accommodation may be regarded as not less than approximately 250 beds estimated on an adult basis.

Efficiency of Existing Hospitals.—There are certain other aspects of hospital administration which should be kept in mind. Two factors have influenced the hospital situation in recent years :—(a) the increase in pneumonia patients, with higher nursing requirements; and (b) the reduced hours of duty of the nursing staff. When the accommodation is taxed to the utmost on a relatively low floor area per bed, difficulties as regards nursing staff arise, especially in the two largest hospitals, Ruchill and Belvidere.

Part of the ward accommodation at Belvidere Hospital consists of the wooden smallpox pavilions, which are now old, obsolete, and out of date. Although all are included in the total fever accommodation, only three of them are in use for minor affections, such as chicken-pox and convalescent scarlet fever patients. They are not suitable for acute infections, and should be replaced. Two of them are now disused. In any case they cannot be occupied for lack of staff accommodation owing to the nursing demand for pneumonia and the shorter nursing hours. One of the benefits, therefore, which new hospital provision would confer is the relief it would afford to the general administration of the existing hospitals. In the fever hospitals, especially Ruchill and Belvidere, the solution of the problem of shorter nursing hours may be found by easing the accommodation for patients rather than by extending the quarters for nursing staff.

Shieldhall Hospital.—This hospital, with accommodation for 100 beds on an adult basis, has become obsolete with staff quarters unsuitable and inadequate, a proportion of them being of a makeshift character. The Sub-Committee on Institutions, on 15th March, 1925, and again on 1st July, 1931, decided "that in the meantime only such repairs be carried out on the buildings generally as may be necessary to keep them wind and water tight." It is generally agreed that the replacement of this hospital has now become necessary. It is the only fever hospital on the south side of the river, and is quite unable to serve the area in its vicinity. A census, taken on 10th December last, showed that 125 patients from the Shieldhall area were under treatment elsewhere, in Belvidere, Ruchill or Knightswood Hospitals. The south-west of the City is least catered for, and if new provision is decided upon it should be located convenient to this area.

Based on the foregoing considerations, the deficiency of hospital accommodation for infectious diseases may be estimated on an adult basis as follows. To replace Shieldhall Hospital 100 beds would be required. The estimated deficiency of existing accommodation may be estimated at 250 beds as a reasonable figure, based on the experience of the average demand over the past few years. In reaching this conclusion, some account has been taken of the constant high pressure, especially during the winter months, on the existing hospitals, the low standard of bed space allowed, the nursing requirements of pneumonia, and the insufficient accommodation for nursing staff. It is hoped that unless in times of exceptional pressure, the new accommodation would afford some relief to this congestion.

Cost of Proposed New Hospital and Equipment.—The capital cost of a new infectious diseases hospital depends upon several considerations. The wards would be of the verandah type, and about one-third of the accommodation would be constructed on the cubicle system. It may be estimated that, given a suitable flat site, with sewer, water supply, gas, and electricity available at the site, the capital cost would be between £700 and £750 per bed. The following approximate estimates of capital and running costs have been made:—

<i>Capital Expenditure—</i>	@ £700.	@ £750.
Site,	£8,500	£8,500
350 beds at £700 (or £750) per bed, ...	245,000	262,500
Furniture and fittings,	15,000	15,000
	<u>£268,500</u>	<u>£286,000</u>
<i>Maintenance Charges—</i>		
Cost of treatment of patients (on basis of Belvidere Hospital during year 1930-31)—		
350		
— of £63,844,	£34,805	£34,805
642		
Interest and Sinking Fund on £268,500 (or £286,000) at 8 per cent. per annum in the first few years (interest being a diminishing quantity), ...	21,480	22,880
	<u>£56,285</u>	<u>£57,685</u>
Equal to rate per £1 on basis of yield of assessment off consolidated rate for year (£43,800),	1.29d.	1.32d.
Less annual cost of Shieldhall Hospital (£15,000), equal to ... ..	.34d.	.34d.
Net additional charge against assessment,	<u>.95d.</u>	<u>.98d.</u>

A further point to be kept in mind is that, as the result of the extra accommodation provided, the Corporation may be able to contract out of the Joint Hospitals, with a saving of about £4,000 per annum. The Joint Hospital Board, which administers Blawarthill Hospital, has for some time been considering the necessity for providing additional accommodation at the hospital, and Glasgow cases have been refused on many occasions. The suggestion that Glasgow should withdraw from this hospital would probably receive favourable consideration from the other constituent authorities. The County Council of Renfrew has also approached the Corporation regarding Darnley Hospital.

Summary.—(1) Shieldhall Fever Hospital may be regarded as obsolete, and it is agreed that its condition is such that replacement has become necessary. The Sub-Committee on Institutions has decided that only such repairs be carried out as may be necessary to keep the buildings wind and water tight.

(2) It is not possible to replace Shieldhall or to meet deficiencies by further extension of existing hospitals, as the maximum accommodation in Ruchill, Belvidere, and Knightswood Hospitals has been reached.

(3) The available accommodation in relation to the actual demand is fully discussed in the memorandum. The maximum pressure on hospital beds is exerted during the winter months, when the seasonal incidence of the commoner infectious diseases is at its highest. Although estimates of probable demand can be roughly deduced from the known periodicity of certain infections, the volume of the demand from year to year as regards any specific disease is more difficult to assess, and must be judged as the epidemic proceeds. The maximum and minimum accommodation actually allotted to the various affections treated in times of high pressure, show this feature clearly.

(4) Measles and whooping-cough occur in biennial epidemics. Scarlet fever has an annual incidence, but it also tends to rise and fall in longer waves of several years. One of these peak periods is occurring now. The wave of diphtheria has been ascending over several years. Pneumonia has a regular high winter prevalence, with variations in incidence and severity depending on such factors as weather conditions, fog, association with influenza, &c. It may occur in considerable volume as a complication of children's diseases, such as measles and whooping-cough.

(5) These considerations show that, while emergencies may arise at any time, it is unnecessary in practice to calculate accommodation on the basis of maximum prevalence of each infection. All that is required is a reasonable margin to meet unexpected contingencies, after allowing for the appropriate number of beds required to meet the average demand as ascertained by experience.

(6) From the data given in the memorandum it is obvious that the average demand has, in recent years, become difficult to meet; that the existing hospitals are being utilised beyond their proper capacity; and that urgent cases fail to obtain admission or have to wait their turn. This has become the normal yearly experience.

(7) This position has arisen since pneumonia became a notifiable disease in 1919, when the policy of providing hospital accommodation was adopted. The numbers treated have rapidly increased from about 1,000 per annum at that time to 3,500 in 1930-31, while in 1928-29 as many as 4,250 patients were admitted to the various hospitals. The accommodation actually occupied by patients with pneumonia varies from 300 to 500 beds, but it is more nearly in the region of the latter

figure, and amounts to between 20 and 25 per cent. of the total available accommodation. Reservation of so large a proportion of the total accommodation for this affection is possible only when measles and whooping-cough are not prevalent, by evacuating tuberculosis beds, and by a degree of overcrowding of wards generally.

(8) It is obvious, therefore, that the modern situation as regards the infectious disease hospitals has arisen out of the policy of providing for the serious respiratory diseases, which include acute primary pneumonia, and the pneumonic complications of measles and whooping-cough. The later group is composed almost entirely of children, while acute pneumonia patients are composed of children to the extent of about 75 per cent. The reasons for this policy lie in the serious nature of these diseases and the difficulty of treating them at home in small houses.

(9) On the basis of the average experience of the past few years the deficiency of hospital accommodation is estimated at 250 beds. In addition, the replacement of Shieldhall Hospital accounts for a further 100 beds, both requirements together amounting to 350 beds on an "adult" basis. It may be estimated that, unless in times of exceptional prevalence of infection, a hospital of this size would meet the recurring winter demand, and would also to a considerable extent relieve the high pressure on the existing fever hospitals.

(10) The capital cost may be roughly estimated at from £700 to £750 per bed on a suitable site with convenient services and free from engineering difficulties. This amounts to approximately £275,000.

A. S. M. MACGREGOR,
Medical Officer of Health.

5th February, 1932.

TABLE B.

CASES OF INFECTIOUS DISEASE TREATED IN HOSPITALS.

Number of patients dismissed.		1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930
		-14	-15	-16	-17	-18	-19	-20	-21	-22	-23	-24	-25	-26	-27	-28	-29	-30	-31
Plague, ...	...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Smallpox, ...	...	—	—	—	—	—	—	71	514	—	—	—	—	—	—	—	16	9	—
Typhus Fever, ...	...	42	8	12	16	29	40	22	7	5	21	1	—	—	—	8	—	1	5
Enteric Fever, ...	...	215	381	196	147	85	130	127	197	75	81	83	75	59	102	119	50	78	124
Scarlet Fever, ...	...	4,218	5,517	5,720	3,038	1,322	1,334	3,032	3,452	3,013	3,458	2,747	3,270	3,433	4,633	3,390	2,984	3,352	5,035
Diphtheria, ...	...	1,626	1,179	1,197	1,104	1,206	1,485	1,925	1,857	1,538	1,707	1,567	1,560	1,790	2,377	2,898	2,130	2,256	2,262
Measles, ...	...	1,930	641	1,296	1,023	997	743	1,233	528	2,521	636	2,901	290	2,207	249	1,896	353	1,467	222
Whooping-cough, ...	...	499	1,030	326	472	887	587	308	779	600	693	938	1,392	801	559	803	792	425	899
Erysipelas, ...	...	470	436	380	323	283	266	525	479	573	573	481	383	527	462	463	543	596	603
Puerperal Fever, ...	...	132	156	173	141	148	97	236	258	242	236	179	221	255	259	283	304	363	447
Chickenpox, ...	...	107	211	93	96	105	92	152	203	261	220	221	287	212	206	200	225	182	192
Cerebro-spinal Fever, ...	...	10	58	154	94	49	51	88	62	69	67	51	41	40	57	67	136	112	142
Encephalitis Lethargica, ...	...	—	—	—	—	—	—	—	—	—	28	32	326	27	26	12	9	6	8
Polio-Encephalitis, ...	...	—	—	—	—	—	19	25	16	10	7	—	—	1	—	—	—	—	3
Polomyelitis, ...	...	—	—	—	—	—	4	4	3	6	3	—	2	—	1	—	45	12	14
Acute Primary and		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Influenza Pneumonia,		—	—	—	—	—	1,434	855	1,019	1,629	1,813	2,500	2,620	3,491	3,193	3,316	4,250	3,264	3,542
Tropical Diseases, ...	...	—	—	—	—	—	—	206	67	59	8	12	7	13	9	21	31	98	67
Trachoma, ...	...	—	—	—	—	—	—	—	—	—	—	—	—	39	37	27	39	19	—
Other Infectious Diseases,	...	12	34	91	268	389	174	58	200	88	—	3	1	1	9	6	156	288	289
Other Diseases, ...	...	484	526	417	341	290	286	346	543	423	771	762	1,049	946	1,162	1,322	1,233	928	1,170
		9,805 10,177 10,055 7,063 5,790 6,742 9,213 10,184 11,112 10,232 12,483 11,533 13,842 13,352 14,823 13,296 13,456 15,024																	

TABLE C.

SUPERFICIAL AREA OF ACCOMMODATION (IN SQUARE FEET) IN USE FOR EACH DISEASE AT DATES ON WHICH THE MAXIMUM NUMBER OF PATIENTS OCCURRED.

Disease.	8/2/24.	16/12/24.	1/12/25.	10/12/26.	23/11/27.	25/1/29.	9/2/30.	3/11/30.	14/12/31.
Scarlet Fever,	66,470	76,054	62,132	63,584	74,894	71,822
Diphtheria,	28,749	27,384	38,417	31,882	37,722	29,704
Measles,	29,344	17,410	20,176	23,234	1,760	25,922
Whooping-cough,	9,368	16,036	7,458	3,938	3,938	—
Pneumonia,	31,573	33,192	41,379	41,098	34,564	28,053
Puerperal Fever,	2,992	2,992	2,992	2,992	4,752	8,607
Chickenpox,	2,690	2,690	2,690	2,690	2,690	2,690
Enteric Fever, &c.,	7,921	10,929	12,331	9,691	10,929	14,390
Erysipelas,	4,356	4,356	4,356	4,356	4,356	4,356
Observation Wards,	15,180	15,180	15,180	15,180	17,385	21,703
Total accommodation, ...	187,543	181,928	197,700	187,574	189,254	188,485	197,314	193,570	207,247

NOTES.

At 8/2/24, Accommodation shown includes tuberculosis ward (5,615 square feet) at Robroyston, used for pneumonia.

At 1/12/25, Accommodation shown includes tuberculosis ward (2,640 square feet) at Shieldhall, used for measles; two tuberculosis wards (5,615 square feet each) at Robroyston, used for pneumonia; and Ward 3 (1,902 square feet) re-opened at Knightswood.

At 10/12/26, Accommodation shown includes tuberculosis ward (3,744 square feet) at Knightswood, used for pneumonia.

At 28/11/27, Accommodation shown includes tuberculosis ward (2,640 square feet) at Shieldhall and tuberculosis ward (3,744 square feet) at Knightswood, used for measles. Ward 3 (960 square feet) at Shieldhall went out of use.

At 25/1/29, Accommodation shown includes tuberculosis ward (5,615 square feet) at Robroyston, used for pneumonia.

At 9/2/30, Accommodation shown includes tuberculosis ward (3,744 square feet) at Knightswood, used for measles; tuberculosis ward (5,615 square feet) at Robroyston, used for pneumonia; new observation ward (2,205 square feet), and pavilion (2,880 square feet) opened at Knightswood.

At 3/11/30, Ward (5,615 square feet) opened for puerperal fever at Robroyston.

At 14/12/31, Accommodation shown includes tuberculosis ward (3,744 square feet) at Knightswood, used for measles; tuberculosis ward (5,615 square feet) at Robroyston used for pneumonia; new observation ward (4,318 square feet) opened at Belvidere.

Knightswood Hospital.—Following on the reconstruction and extension of this hospital, during recent years, increased accommodation was provided for the nurses, by an extension of the home accommodation. A new lecture room and extended accommodation for recreation were opened at the beginning of October.

No other alterations were made in the fever hospital accommodation during the year. The hospital bed accommodation for these diseases is shown in Table XX. in the Appendix, the second portion of which indicates the number of beds available in Corporation institutions and sanatoria, and the number of beds occupied by tuberculosis patients in other hospitals and sanatoria, for which payment is made.

Information, with regard to expenditure, number of patients treated, residence, and average cost, is given in Table XXI. for the financial year ending 31st May, 1931.

Altered Diagnosis.—Altogether there were 1,618 instances of altered diagnoses, which are equal to 8·8 per cent. of the total cases admitted to fever hospitals. Of the altered diagnoses, 1,193 were changed to non-infectious diseases. Of the total cases admitted to hospital as suffering from scarlet fever, 278 were altered to other diseases, mainly diseases of the digestive system which accounted for 102. The respective numbers for diphtheria and pneumonia were 349, equal to 16 per cent. of the total verified cases, and 504, or 16 per cent.

EAR, THROAT, AND NOSE DISEASES.

The following statement summarises the visits made to hospitals by the two specialists. Further details will be found in the various hospital reports:—

RECORD OF ATTENDANCES AND OPERATIONS BY AURISTS AT CORPORATION HOSPITALS FOR THE YEAR 1931.

	Patients.						Staff.		
	New Cases.		Old Cases.		Operations.		New Cases.	Old Cases.	Operations.
	Age-5	+5	-5	+5	-5	+5			
Belvidere, ...	61	52	38	31	23	13	9	5	3
Ruehill, ...	154	177	65	98	46	69	15	12	—
Knightswood, ...	19	49	3	9	6	23	1	—	4
Shieldhall, ...	17	13	25	13	9	5	—	—	—
Robroyston, ...	—	—	—	—	—	—	—	—	—
Total, ...	—	—	—	—	—	—	—	—	—
Year 1930,	157	208	94	155	50	105	40	42	10

GLASGOW.—STATEMENT SHOWING AGE AND SEX DISTRIBUTION OF CASES

Cases (including Deaths).			Age.	Enteric Fever.	Paratyphoid Fever.	Intermittent Fever.	Scarlet Fever.	Diph. and Mem. Croup.	Erysipelas.	Cerebro-spinal Fever.	Continued Fever.	Typhus Fever.	Mothers with Babies.	Polio-myelitis.	Acute Primary Pneumonia.	Acute Influenzal Pneumonia.	Malaria.
Males,	...	...	- 1	—	—	—	19	21	9	34	—	—	—	—	257	12	—
"	...	...	- 2	—	—	—	91	50	2	10	—	—	—	1	271	4	—
"	...	...	- 3	—	1	—	171	85	3	4	—	—	—	—	131	1	—
"	...	...	- 4	1	—	—	235	84	4	3	—	—	—	—	80	—	—
"	...	...	- 5	2	—	—	242	93	—	3	—	—	—	—	58	2	—
"	...	...	-10	7	1	—	1,164	338	5	7	—	—	—	—	280	8	—
"	...	...	-15	5	1	—	386	97	10	1	—	—	—	—	121	5	—
"	...	...	-25	7	2	—	208	59	19	16	—	—	—	—	247	24	—
"	...	...	-35	5	—	—	89	21	28	5	—	—	—	—	150	22	—
"	...	...	-45	2	2	—	28	4	53	—	—	—	—	—	123	26	—
"	...	...	45+	4	1	—	7	3	125	1	—	—	—	—	180	17	—
Total,	...	...		33	8	—	2,640	855	258	84	—	—	—	1	1,898	111	—
Females,	...	...	- 1	—	—	—	18	12	7	19	—	—	—	—	177	1	—
"	...	...	- 2	1	1	—	101	56	3	10	—	—	—	1	173	2	—
"	...	...	- 3	1	—	—	152	51	4	10	—	—	—	2	123	1	—
"	...	...	- 4	4	1	—	259	86	—	4	—	—	—	1	58	2	—
"	...	...	- 5	—	—	—	288	109	2	2	—	—	—	—	40	—	—
"	...	...	-10	4	5	—	1,389	436	2	8	—	—	—	—	184	5	—
"	...	...	-15	6	2	—	540	154	10	9	—	—	—	—	66	5	—
"	...	...	-25	7	11	43	364	164	45	7	—	—	1	—	98	14	—
"	...	...	-35	4	10	64	154	49	46	6	1	—	—	—	76	4	—
"	...	...	-45	3	2	26	44	12	42	3	—	1	—	—	57	5	—
"	...	...	45+	3	4	3	13	11	132	2	—	—	—	—	83	8	—
Total,	...	...		33	36	136	3,322	1,140	293	80	1	1	1	4	1,135	47	—
Deaths.																	
Males,	...	...	- 1	—	—	—	2	3	3	31	—	—	—	—	85	1	—
"	...	...	- 2	—	—	—	3	10	—	8	—	—	—	1	63	2	—
"	...	...	- 3	—	—	—	4	7	—	2	—	—	—	—	20	—	—
"	...	...	- 4	—	—	—	2	8	—	2	—	—	—	—	4	—	—
"	...	...	- 5	—	—	—	6	6	—	1	—	—	—	—	4	—	—
"	...	...	-10	—	—	—	12	12	—	4	—	—	—	—	13	1	—
"	...	...	-15	—	—	—	1	3	—	1	—	—	—	—	5	1	—
"	...	...	-25	1	—	—	3	3	1	8	—	—	—	—	16	—	—
"	...	...	-35	1	—	—	4	1	1	2	—	—	—	—	33	4	—
"	...	...	-45	1	—	—	1	—	3	—	—	—	—	—	37	7	—
"	...	...	45+	1	—	—	1	1	15	1	—	—	—	—	75	9	—
Total,	...	...		4	—	—	39	54	23	60	—	—	—	1	355	25	—
Females,	...	...	- 1	—	—	—	2	3	3	16	—	—	—	—	51	—	—
"	...	...	- 2	—	—	—	2	12	1	9	—	—	—	—	42	1	—
"	...	...	- 3	—	—	—	7	4	—	7	—	—	—	—	18	—	—
"	...	...	- 4	—	—	—	6	4	—	3	—	—	—	—	7	—	—
"	...	...	- 5	—	—	—	3	6	1	—	—	—	—	—	1	—	—
"	...	...	-10	1	—	—	7	16	—	6	—	—	—	—	11	—	—
"	...	...	-15	—	—	—	1	4	—	8	—	—	—	—	2	—	—
"	...	...	-25	—	—	5	—	1	2	5	—	—	—	—	5	—	—
"	...	...	-35	1	1	7	2	—	1	3	—	—	—	—	13	—	—
"	...	...	-45	—	—	5	1	—	2	3	—	1	—	—	16	1	—
"	...	...	45+	1	1	1	—	2	10	2	—	—	—	—	31	1	—
Total,	...	...		3	2	18	31	52	20	62	—	1	—	—	197	3	—

DISMISSED FROM FEVER HOSPITALS, AND DEATHS DURING THE YEAR 1931.

Dysentery.	Pulmonary Tuberculosis.	Other forms of Tuberculosis.	Measles.	German Measles.	Whooping-cough.	Chickenpox.	Mumps.	Influenza.	Veneral Diseases.	Babies with Mothers.	No apparent Disease.	Impetigo.	Others.	Enc. Lethargica.	Anthrax.	Bert-bert.	Unclassified.	Puerperal Pyrexia.	TOTALS.
5	—	1	108	—	122	18	—	1	—	3	4	—	64	—	—	—	—	—	668
7	—	2	199	—	116	15	—	—	—	—	3	—	61	—	—	—	—	—	832
2	—	4	149	—	78	12	—	—	—	—	3	1	42	—	—	—	—	—	687
1	—	6	83	—	50	9	—	—	—	—	5	—	26	—	—	—	—	—	587
3	—	2	47	—	32	10	—	—	—	—	1	—	17	—	—	—	—	—	512
1	1	12	99	3	37	29	2	1	—	—	10	—	80	—	—	—	—	—	2,085
1	2	9	2	—	1	5	—	8	—	—	6	—	28	2	—	—	—	—	690
—	7	5	5	—	—	4	—	10	—	—	2	—	50	1	—	1	—	—	667
2	5	1	8	—	—	2	—	6	—	—	—	—	42	1	—	—	1	—	388
2	7	1	—	—	—	—	—	—	—	—	2	—	25	—	—	—	1	—	276
—	1	—	—	—	—	—	—	—	—	—	—	—	49	—	—	—	—	—	388
24	23	43	700	3	436	104	2	26	203	3	36	1	484	4	—	1	2	—	7,983
2	—	—	78	—	114	12	—	—	—	5	8	—	57	—	—	—	—	—	510
6	—	3	167	—	134	16	—	—	—	—	5	2	57	—	—	—	—	—	738
4	—	4	129	1	74	11	—	—	—	—	4	—	34	—	—	—	—	—	605
2	—	6	101	—	65	12	—	—	—	—	1	—	16	—	—	—	—	—	618
1	—	1	58	—	32	10	—	—	—	—	1	—	19	—	—	—	—	—	563
6	1	8	105	2	54	30	—	4	—	—	6	—	59	—	—	—	—	—	2,308
1	—	8	1	—	—	8	—	2	—	—	3	—	31	—	—	—	—	—	846
3	6	8	47	2	—	2	2	4	—	—	1	1	71	1	1	—	23	6	932
1	1	1	11	—	2	—	—	2	—	—	1	—	49	—	—	—	2	5	490
—	—	1	2	1	—	—	2	3	—	—	1	—	32	—	—	—	—	7	244
—	1	—	1	—	—	—	—	2	—	—	—	—	31	—	—	—	—	—	294
26	9	40	700	6	475	101	4	17	—	5	31	3	456	1	1	—	25	18	8,148
3	—	1	38	—	59	3	—	1	—	—	—	—	8	—	—	—	—	—	238
1	—	2	62	—	46	1	—	—	—	—	—	—	1	—	—	—	—	—	200
—	—	4	22	—	15	—	—	—	—	—	—	—	3	—	—	—	—	—	77
—	—	6	5	—	8	—	—	—	—	—	—	—	—	—	—	—	—	—	35
—	—	1	4	—	4	—	—	—	—	—	—	—	3	—	—	—	—	—	29
—	—	9	6	—	1	—	—	—	—	—	—	—	2	—	—	—	—	—	60
—	—	9	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	23
—	1	4	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	40
—	1	1	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	49
—	2	1	—	—	—	—	—	—	—	—	—	—	4	—	—	—	—	—	56
—	—	—	—	—	—	—	—	—	—	—	—	—	11	—	—	—	—	—	114
4	4	38	137	—	133	4	—	1	2	—	—	—	39	—	—	—	—	—	923
—	—	—	28	—	50	1	—	—	—	2	—	—	5	—	—	—	—	—	161
—	—	3	46	—	58	—	—	—	—	—	—	—	4	—	—	—	—	—	178
—	—	4	21	—	15	—	—	—	—	—	—	—	1	—	—	—	—	—	77
—	—	6	8	—	8	—	—	—	—	—	—	—	1	—	—	—	—	—	43
—	—	1	4	—	4	—	—	—	—	—	—	—	1	—	—	—	—	—	21
—	—	6	2	—	3	—	—	—	—	—	—	—	2	—	—	—	—	—	54
—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22
—	—	8	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	29
—	—	1	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	32
—	—	—	—	—	—	—	—	—	—	—	—	—	5	—	—	—	2	—	36
—	—	—	—	—	—	—	—	—	—	—	—	—	5	—	—	—	—	—	54
—	—	36	109	—	138	1	—	—	—	2	—	—	30	—	—	—	—	2	707

RECEPTION HOUSES.

The accommodation at Baird Street Reception House was utilised wholly during the year for the treatment of cases of ophthalmia neonatorum and artificial light therapy of tuberculosis. The former is dealt with in Section III. of the report, and the latter under "Tuberculosis."

The rear annexe of South York Street Reception House continued to be utilised for the isolation of young children prior to admission to the various country homes. Cases of scabies to the number of 46 and 21 verminous persons were also treated.

CONTACTS, &C., ADMITTED TO SOUTH YORK STREET RECEPTION HOUSE.

				1930	1931		
				Total.	Adults.	Children.	Total.
Smallpox Contacts,	...	...	...	35	—	—	—
Enteric Fever, „	...	...	...	1	—	—	—
Scarlet Fever, „	...	...	...	3	—	7	7
Diphtheria „	...	...	...	8	1	4	5
Whooping-cough,	...	...	...	7	—	5	5
Dysentery Contacts,	...	...	...	—	—	—	—
Enteric and Measles Contacts,	...	...	...	1	—	—	—
Impetigo,	...	...	...	18	—	8	8
Verminous Persons,	...	...	...	15	10	11	21
Scabies, ...	...	...	...	58	12	34	46
For Observation before admission to Country Homes,	...	...	...	151	—	185	185
Trachoma,	...	...	...	—	—	—	—
Cancrum Oris, ...	...	...	...	—	—	—	—
House being fumigated,	...	...	...	25	—	—	—
Typhus Fever,	...	...	...	13	4	6	10
Bug Infestation,	...	...	...	—	6	9	15
Total,	...	...	...	335	33	269	302

BELVIDERE FEVER HOSPITAL.

The admissions to hospital for the year 1931 numbered 6,546, which is 247 more than in 1930 and almost 1,000 more than in 1929.

On January 1, there remained in hospital from the previous year 610 patients. During 1931, 6,437 cases were treated to a conclusion. This figure is much in excess of the average. There were 659 deaths, equivalent to a general mortality rate of 10·2 per cent. 157, or almost 24 per cent. of the fatal cases, were admitted in a moribund condition. For comparison the mortality rates for the three previous years are given:—

1928,	...	...	...	...	12·8 per cent.
1929,	...	...	...	...	13·0 ,,
1930,	...	...	...	...	9·2 ,,

The average duration of residence of patients who recovered was 37 days; in fatal cases, 12 days. The daily average number of patients for the year was 621. For the busiest month, namely, December, it was 723. Grouping the first and fourth quarters of the year together, the daily average was 680; similarly grouping the second and third quarters, the figure was 560.

Scarlet Fever was very prevalent, the number of cases treated being 2,298, which is 331 more than in the previous year and 869 more than in 1929. Diphtheria showed some diminution, 929 cases being registered compared with 1,177 in the previous year. The number of patients treated for pneumonia, 1,159, was practically the same as in the previous year and considerably under the average. An encouraging feature was the relatively low mortality rate, 18·2 per cent., the lowest yet recorded. Measles was prevalent, and the restricted accommodation available necessitated some selection of the cases. The hospital admissions were therefore the more serious cases, and many suffered from grave complications. The mortality rate recorded, 20·2 per cent., is abnormally high, but it should be borne in mind that it refers to a group of specially severe cases. Whooping-cough was also prevalent in the early part of the year and 399 cases were treated. In the Enteric Fever group, only 56 patients were dealt with. Of these, 21 were B. typhosus infections, while 35 suffered from paratyphosus B. There were 3 deaths, giving a group mortality rate of 5·4 per cent.

Ward 27 East, a new two-storey observation pavilion of 34 beds, was available early in January, and throughout the year was fully occupied. It has proved a great boon and permitted the acceptance of many cases which otherwise must have been refused for lack of suitable accommodation. There is still, however, a definite shortage of isolation cubicles. The number of isolation beds in the two observation wards

is 68, little more than 10 per cent. of the total beds. Experience shows that this accommodation is inadequate during the busiest period of the winter, and it is generally conceded that a figure more in the neighbourhood of 30 per cent. represents the ideal.

Condition of Patients on Admission in relation to Mortality Rate.—Reference has already been made to the fact that 24 per cent. of the fatal cases were moribund on admission. In pneumonia, out of 211 fatalities, 50 died within 48 hours of admission. Similarly in whooping-cough, out of 137, 28 died within 48 hours. In measles, 14 of the 88 fatal cases were moribund on admission. These figures show very clearly the severe type of illness which the hospital is called upon to treat, and afford an explanation of the relatively high mortality rates recorded. If these moribund cases were deducted the general mortality rate would be in the neighbourhood of 8 per cent.

Physical Condition.—It is encouraging to observe a slow but gradual improvement in the physique of the young children admitted. Rachitic deformities are relatively rare compared with ten years ago. The children of school age, also, have improved in physical condition. The incidence of body and head vermin is steadily diminishing, but dirt and septic sores, particularly in the younger children, are still far too common.

Scarlet Fever.—2,298 cases of scarlet fever came under treatment. This figure is very much in excess of the average. Among the scarlatina certifications there were 20 deaths, equivalent to a mortality rate of 0.9 per cent. In 6 of the fatal cases death was not directly attributable to scarlet fever. Excluding these, the mortality rate would be 0.6 per cent. Although on the whole the disease may be regarded as of mild type, a larger number of severe cases was met with than in the previous year and the proportion of septic cases and toxic cases was also increased. For many years scarlet fever has diminished in severity, but it would appear that the low-water mark has been reached, and that at present we are on the turn of the tide, which may flow once more towards a severe type of disease. Among the fatal cases in the year under review were two examples of malignant or toxic scarlet fever, and no less than 12 severe septic cases. In all these cases large doses of serum were exhibited, usually by the intravenous route. With regard to the use of serum, the policy of the last two or three years has been continued, all cases, except those definitely classed as of mild type, being so treated. Owing to the magnitude of the epidemic, and the resulting pressure on the available beds, patients have been discharged a little earlier than usual where no contra-indications existed. In uncomplicated cases the majority have been discharged about the end of the fourth week. The return rate has very slightly increased, but, in view of the very wide prevalence of the disease, this can hardly be regarded as a very reliable criterion.

Among the cases notified as scarlet fever, 40 were found to be suffering coincidentally from other affections:—

Scarlet Fever and Diphtheria,	...	...	...	15
" " " Chickenpox,	...	...	...	18
" " " Whooping-cough,	...	...	...	5
" " " Measles,	...	...	...	2

In addition, 9 were in the incubation stage of measles, 6 in the incubation stage of whooping-cough, and 8 in the incubation stage of chickenpox.

Diphtheria.—As already stated, the number of cases of diphtheria, 929, was less than in the previous year, but the mortality rate, 7.3 per cent., was much higher. More than half the fatal cases were moribund on admission. Although the mortality rate was increased, the disease could not be regarded as more severe than the type which prevailed in the previous year. The increased mortality was due to a considerable number of cases being received too late for successful serum treatment. Large doses of serum were employed, and, where possible, the intravenous route was followed in severe cases.

Mixed infections were numerous. Among the cases certified as diphtheria, 55 were found to be suffering coincidentally from other diseases; 35 from scarlet fever, 13 from measles, 4 from whooping-cough, and 3 from chickenpox. In addition, 7 were incubating scarlet fever, 5 measles, 4 whooping-cough, and 1 chickenpox. As hitherto, a large number of cases were erroneously certified, chiefly chest conditions, associated with some degree of respiratory embarrassment, in young children, and septic throat conditions in older patients.

Pneumonia.—1,159 cases were treated compared with 1,111 in 1930, and 1,572 in 1929. As in 1930, scarlet fever prevailed to a large extent, and limited the number of beds available for pneumonia. The reduced admissions are, therefore, not evidence of reduced incidence. 211 deaths occurred, equivalent to a mortality rate of 18.2 per cent., compared with 21.4 per cent. in 1930. 50 of the fatal cases were moribund on admission. If these moribund cases were excluded the mortality rate would be reduced to 14.5 per cent.

The investigation, which was commenced in 1929, has been continued. All cases over 14 years have had the infecting organism isolated and typed, and an attempt has been made to correlate bacteriological types with clinical findings. Treatment by means of oxygen and a mixture of oxygen and carbon dioxide has been used intensively. These gases have been given by means of the Haldane's apparatus, which has proved very satisfactory in practice. The majority of the patients have taken full advantage of this method of treatment and only two men have refused it throughout their illness. The epidemiological aspect of the disease has been investigated and over 150 ex-patients have been examined since dismissal. Notes have been made of any pathological findings and it is hoped that a study of those may indicate a possible means of carrier control.

Measles.—436 cases were treated. The very high mortality rate of 20·3 per cent. was recorded, there being 88 fatal cases. Such a high mortality rate calls for an explanation. During the first third of the year only one case of measles was admitted. The following table shows the number of cases treated and the deaths in the age groups from 1st May until 31st December:—

	May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.
Under 1 year,	3	1	4	—	5	1	4	1	15	3	13	7	12	8	5	5
1 and under 2,	8	2	4	2	16	5	6	—	22	6	19	3	23	10	11	10
2 „ 3,	5	1	6	3	12	1	16	1	18	3	22	1	16	4	5	2
3 „ 4,	4	—	4	1	7	2	4	—	23	1	12	1	8	1	—	—
4 „ 5,	2	—	1	—	3	—	5	—	6	—	4	—	2	—	1	1
Over 5 years,	4	—	9	—	9	—	6	—	22	1	13	—	13	—	3	—
	26	4	28	6	52	9	41	2	106	14	83	12	74	23	25	18

The mortality rate from 1st May until 30th September was a little under 14 per cent., while that from 1st October until 31st December was 29 per cent. During these last three months of the year practically all the admissions were cases selected from a considerable waiting list on account of their severity or the presence of some complication or coincident condition. Nearly all of them suffered from pneumonia and many from enteritis as well. For the most part they were received late in the disease, often two or three weeks after the initial symptoms. 171 of the total cases were under two years of age. The high fatality rate in these infants is shown below:—

Under 1 year. 1 and under 2. 2 and under 3. 3 and under 4. 4 and under 5.
42·6 per cent. 34·5 per cent. 16·0 per cent. 9·7 per cent. 3·7 per cent.

No deaths were attributable to Measles *per se*. The associated causes were as follows:—

Pneumonia and Enteritis, ...	36
Pneumonia, ...	40
Enteritis, ...	3
Whooping-cough and Pneumonia, ...	4
Pneumonia and Post Measles Laryngeal Croup, ...	1
Pneumonia and Burn, ...	1
Pneumonia and Pneumococcal Peritonitis, ...	1
Malignant Endocarditis, ...	1
Cancerum Oris, ...	1
	88

Enteric Group.—With the object of conserving beds, it was arranged that one ward only—for females—be retained at Belvidere, and that the male cases be treated elsewhere. In all, 56 patients were received; 21 examples of *B. typhosus*, and 35 paratyphosus *B. infection*. One of the former and two of the latter died. The mortality rate for the group was 5·4 per cent.

In addition to the above, 21 cases of dysentery were treated, three-fourths of them being in very young children. Twenty were of

bacillary type and one was amœbic. Two deaths occurred in the bacillary group.

Whooping-cough.—During the first half of the year whooping-cough was prevalent, but only severe or complicated cases were admitted to hospital. The disease proved very fatal, the mortality rate being 34·3 per cent. What has been said of measles is also true of whooping-cough, inasmuch as the majority of the cases treated already suffered from pneumonia, and many from enteritis as well on admission. Among 399 cases treated, 14 were under three months, 28 under six months, 110 under a year, and 225 under two years. In this group the mortality rate was very high, approximately 49 per cent., whereas in the 136 cases between 2 and 5 years of age the mortality rate was 20 per cent. In previous reports I have on several occasions presented the view that the results of hospital treatment do not justify the hospitalisation of so many very young children. When already very ill with pneumonia or enteritis, they suffer during transportation to hospital and frequently arrive in a condition of severe collapse, from which some do not respond. Adequately supervised home treatment of these young infants might, I think, yield better results. The associated causes of death were as follows:—

Pneumonia and Enteritis,	...	...	...	...	16
Pneumonia and Convulsions,	...	...	...	...	17
Pneumonia and Tuberculous Meningitis,	...	...	...	...	2
Pneumonia and Marasmus,	...	...	...	...	3
Pneumonia and Measles,	...	...	...	...	3
Pneumonia,	...	...	...	...	87
Enteritis,	...	...	...	...	5
Convulsions,	...	...	...	...	2
Myocarditis,	...	...	...	...	2
					<hr/>
					137
					<hr/>

Cerebro-spinal Fever.—58 cases were treated to a conclusion, and 39 of them died. Of the 58, 45 were under five years of age. The cases were of the sporadic type and none exhibited petechial rashes. Many conditions, particularly pneumonia and tuberculous meningitis, were erroneously certified as cerebro-spinal fever.

Chickenpox.—Chickenpox was again prevalent and 198 cases received hospital treatment. A considerable number of these cases were admitted from other institutions, such as the general hospitals or the Sick Children's Hospital, so that, in addition to chickenpox, many medical or surgical conditions were met with. No deaths were attributable to chickenpox, but one occurred from pneumonia, one from marasmus, and three from enteritis.

Puerperal Fever.—During the year only a proportion—about 32 per cent. of the puerperal cases removed to hospital were treated in Belvidere. The remainder were dealt with in Robroyston Hospital.

Among 136 patients, 18 deaths occurred. The mortality rate was therefore 13·2 per cent. A report on the lines of previous reports has been framed by Dr. Hunter, and in order to maintain continuity is given below. An outstanding and very gratifying feature, compared with previous years, is the earlier admission of the patients, the majority being admitted within the first four days of pyrexia. The proportion of abortions was greatly increased. No less than 49, or 36 per cent. of the total, were of this description. In the previous year such cases only represented 20 per cent.

Dr. Hunter's Report.—136 patients were treated, 18 of whom died. This gives a mortality rate of 13·2 per cent., which is slightly higher than in the previous year.

The number of admissions was considerably smaller than in previous years.

The figures in this report are based on dismissals during the year and not on admissions as formerly.

<i>Confirmed Cases, 136.</i>						<i>Fatal Cases.</i>	
<i>Age Distribution—</i>							
Under 20 years,	...	...	...	...	7	...	—
20 and under 25,	...	...	...	...	37	...	5
25 „ 30,	...	...	...	...	28	...	3
30 „ 35,	...	...	...	...	35	...	4
35 „ 40,	...	...	...	...	21	...	5
40 „ 45,	...	...	...	...	7	...	—
45 „ 50,	...	...	...	...	1	...	1
						<u>136</u>	<u>18</u>

<i>Duration of Pregnancy—</i>						<i>Fatal Cases.</i>	
Full time,	...	...	...	...	76	...	11
Premature,	...	...	...	...	9	...	1
Miscarriage,	...	...	...	...	2	...	—
Abortion,	...	...	...	...	49	...	6

The abortions equal approximately 36 per cent. of all the cases treated. The majority of these cases were unattended by a doctor during their illness and in most cases retained products were the cause of sepsis.

<i>Sex Incidence—</i>							
Males,	...	...	...	...	46		
Females,	...	...	...	...	45		
Multiple Births,	...	...	...	...	5	(in each case twins).	

<i>Marriage—</i>							
Married,	...	...	...	...	126		
Single,	...	...	...	...	10		
Percentage Illegitimate,	...	...	...	...	7·3		

<i>State at Birth—</i>						<i>Fatal Cases.</i>	
Alive,	...	...	...	...	86	...	10
Dead,	...	...	...	...	5	...	2

<i>Type of Labour in Full-time Cases—</i>							
Natural Birth,	...	...	...	...	61	...	9
Natural birth, with chloroform,	...	...	...	...	2	...	—
Instrumental birth, with chloroform (including 1 spinal anæsthetic),	...	...	...	...	19	...	2
Breech birth,	...	...	...	...	7	...	1

Attendance at Birth—

Doctor,	14	...	2 (10.3%)
Midwife,	43	...	5 (31.6%)
Doctor and Nurse,	31	...	5 (22.8%)
Doctor called in later,	2	...	— (1.4%)
Maternity Homes or Hospital,	9	...	— (6.7%)
No attendant,	32	...	6 (23.6%)
Attended in Belvidere,	5	...	— (3.6%)

The 32 cases with no attendant were all abortion cases. Of the 17 cases of abortion who had attendance, 5 aborted after admission to hospital and were not suitable cases for admission.

Condition of Placenta—

		Fatal Cases.
Whole,	75	9
Broken,	56	8
Manually removed,	5	1

Thus in approximately 45 per cent. of cases the placenta was incomplete, or required to be removed manually. The majority of the cases where the placenta was broken were abortions.

Previous Obstetric History.—Twenty patients gave a history of a previous abortion, while six patients had had several abortions. Fifteen patients had had previous difficult labours.

Pyrexia.—The following table shows the period of occurrence and duration of pyrexia:—

	Number of Days.													
	1	2	3	4	5	6	7	8	9	10	14	21	21	
	Number of Cases.													
Onset of Fever after Birth,	9	20	20	9	7	4	8	6	1	3	10	6	9	
Days febrile before admis- sion,	36	17	16	11	7	3	4	2	1	1	4	—	3	
Duration of Fever in Hos- pital,	11	30	22	10	7	4	3	4	3	7	6	8	15	
Fever on day of confinement,	...	...	...	...	...	...	...	...	...	...	23	...	...
Fever one day before confinement,	...	...	...	...	...	...	...	...	...	...	1	...	...
Admitted on first day of fever,	...	...	...	...	...	...	...	...	...	...	31	...	...
Cases with no fever after admission,	...	...	...	...	...	...	...	...	...	...	3	...	...
Patients febrile, but died in less than 24 hours after admission, ... ..	...	...	...	...	...	...	...	...	...	...	3	...	...

It will be noted that the duration of pyrexia prior to admission is comparatively short in most cases. More cases were admitted on the first day of fever and one day after fever commenced than were admitted at any later date.

Lesions found—

	All Cases.	Fatal Cases.
Perineal Tears—		
Complete,	1	1
Incomplete,	11	4
Gangrenous Laceration,	1	1
Vaginal Tears,	11	2
Cervical Tears,	13	2
Acute Vaginitis,	2	—
Purulent Cervicitis,	5	1

Lesions found—

	All Cases.	Fatal Cases.
Retained Products—		
Full-time births,	5	1
Abortions,	39	4
Subinvolution of Uterus,	41	—
Anteflexion of Uterus,	6	—
Retroflexion of Uterus,	4	—
Prolapse of Uterus,	1	—
Uterine Fibroids,	1	—
Septic Endometritis,	45	3
Salpingitis—Unilateral,	2	—
Salpingo-oophoritis—Unilateral,	3	—
Pelvic Lymphangitis,	1	—
Pelvic Cellulitis,	5	1
Pelvic Peritonitis,	5	3
Parametritis,	4	—
Gangrenous Parametritis,	1	1
Septicæmia,	15	11
Pyæmia,	4	2
Septic Arthritis,	2	—
Phlegmasia Alba Dolens—		
Unilateral,	6	—
Bilateral,	4	1
Septic Emboli,	2	2
Post-partum Hæmorrhage,	3	1
Lung conditions—		
Broncho-pneumonia,	4	2
Lobar Pneumonia,	1	1
Bronchitis,	4	—
Pulmonary Infarction,	1	—
Tuberculosis—both Lungs,	1	—
Pleurisy,	1	1
Pleurisy, with effusion,	2	—
Nephritis,	1	—
Albuminuria,	2	—
Pyelitis,	3	—
Uræmia,	1	—
Anæmia,	5	—
Splenic Anæmia,	1	—

*Bacteriological Findings—**Organisms cultured from Cervical Smears.*

Streptococci,	20	2
Staphylococci,	18	—
B. Coli,	8	1
B. Coli and Streptococci,	4	—
B. Coli and Staphylococci,	2	—
B. Coli and Gram-positive Diplococcus,	1	—
Streptococci and Staphylococci,	4	—
Streptococci, Staphylococci and B. Coli,	2	—
Staphylococci and Pneumococci,	3	—
Streptococci and Pneumococci,	1	—
Gram-positive Diplococcus,	4	—
No Growth or Smear obtained,	69	14

Organisms obtained from Blood Cultures.

Streptococcus Hæmolyticus,	10	6
Staphylococcus Aureus,	4	—
Bacillus Coli,	1	—
No Growth obtained,	29	12

The numbers admitted from the various treatment centres were as follows :—

Black Street Centre, ...	...	...	...	...	...	99
Broomielaw Centre, ...	...	...	...	...	...	50
Western Infirmary, ...	...	...	...	...	...	16
Bellahouston Centre, ...	...	...	...	...	...	15
Other sources, ...	...	...	...	...	...	23
						<hr/> 203 <hr/>

Eight cases were admitted suffering from complications arising directly from treatment with the arsenical preparations. Four of these were cases of dermatitis and three were cases of jaundice. The remaining case, which proved fatal, was one of anaphylactic shock, or at least a condition closely related thereto. The others made an uneventful and complete recovery. No complications resulting from arsenical treatment occurred in connection with such treatment given in hospital.

The average daily residence was 33 days.

THOMAS ARCHIBALD,
Physician-Superintendent.

20th May, 1932.

BELVIDERE HOSPITAL—STATEMENT OF CASES TREATED ACCORDING TO SEX. DATA BASED ON DISMISSALS AND DEATHS FOR YEAR 1931.

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	Admitted.		Dismissed.		Died.		Remaining in Hospital, 31st Dec.		Mortality per cent.		Average Residence (days)						Ages.		Diagnoses.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Males.	Females.	
Typhus, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—5	+15	—
Enteric Fever, ...	1	19	1	19	—	1	—	—	—	—	—	—	—	—	—	—	—5	+15	+15
Paratyphoid Fever (B.), ...	—	—	2	31	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—
Continued and Undefined Fever, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Puerperal Fever, ...	—	143	—	118	—	18	—	14	—	13.2	—	—	—	—	—	—	—	—	14
Smallpox, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17
Scarlet Fever, ...	983	1,432	947	1,331	13	7	122	218	1.4	0.5	41	40	32	26	293	543	339	777	123
Diphtheria and Mem. Croup,	385	543	345	516	36	32	59	73	9.4	5.8	42	44	7	6	145	196	160	275	217
Erysipelas, ...	—	2	—	1	—	1	—	—	—	50.0	—	17	—	3	—	—	—	—	2
Cholera, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cerebro-spinal Fever,	38	20	14	5	22	17	4	1	61.1	77.3	70	106	30	20	25	4	7	20	74
Trachoma, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Encephalitis Lethargica,	—	—	1	—	—	—	—	—	—	—	68	—	—	—	—	1	—	—	—
Acute Poliomyelitis,	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Acute Poliomyelitis,	1	2	—	2	1	—	—	—	100.0	—	—	95	17	—	1	—	—	2	1
Acute Primary Pneumonia, ...	668	357	575	321	133	70	42	25	18.8	17.9	31	37	10	11	260	162	286	186	154
Acute Influenzal Pneumonia,	41	15	36	16	7	1	1	—	16.3	5.9	25	31	14	1	4	4	35	1	5
Malaria, ...	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dysentery, ...	11	9	9	10	2	—	—	—	18.2	—	30	29	9	—	8	1	2	7	1
Relapsing Fever, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pulmonary Tuberculosis, ...	9	—	10	—	—	—	—	—	—	—	24	—	—	—	—	3	7	—	—
Other forms of Tuberculosis,	16	14	—	1	17	14	—	—	100.0	93.3	—	76	8	7	7	7	3	10	3
Measles, ...	254	279	159	189	46	42	49	48	22.4	18.2	32	33	13	11	173	32	187	34	10
German Measles, ...	2	2	2	2	—	—	—	—	—	—	9	11	—	—	—	2	—	1	1
Whooping-cough, ...	175	206	115	147	69	68	2	1	37.5	31.6	44	46	10	13	170	14	195	20	25
Chickenpox, ...	86	97	98	95	4	1	1	10	3.9	1.0	30	28	14	1	62	34	60	35	27
Mumps, ...	2	—	2	—	—	—	—	—	—	—	23	—	—	—	—	2	—	—	—
Veneral Diseases, ...	215	—	201	—	2	—	24	—	1.0	—	33	—	2	—	—	—	203	—	—
Babies with Mothers, ...	1	1	1	—	1	—	—	—	100.0	26	—	—	—	3	1	—	—	1	—
No apparent Disease,	—	—	—	—	—	—	—	—	—	—	8	10	—	—	7	3	1	10	4
Others, ...	225	199	199	196	15	14	17	6	7.0	6.7	19	23	8	16	88	55	71	89	27
Influenza, ...	—	—	—	—	—	—	—	—	12.5	—	16	18	5	—	1	1	6	—	—
Puerperal Pyrexia, ...	—	18	—	16	—	2	—	—	—	11.1	—	28	—	5	—	—	—	1	8
Impetigo, ...	—	—	—	—	—	—	—	—	—	—	—	47	—	—	—	—	—	—	6
Mothers with Babies, ...	—	1	—	1	—	—	—	—	—	—	—	24	—	—	—	—	—	2	—

Total, ... 3,131 3,415 2,735 3,043 368 291 321 398 11.9 8.7 35 39 12 12 1,246 1,065 792 1,275 1,301 758 726

RUCHILL FEVER AND TUBERCULOSIS HOSPITAL.

The total number of cases treated in the hospital during the year 1931 was 6,462, an excess over the 1930 total of 1,115. This increase was largely due to the fact that the numbers of scarlet fever patients were considerably over the usual complement. The resources of the hospital have been tried to the utmost, and although the general results have been satisfactory it is felt that such long continued and high pressure does not offer the best conditions for competent work. The general mortality rate was 10·5 per cent., a figure which conforms to the usual experience.

This year, as last, there was one isolated case of typhus fever which occurred in a woman who was sent in to hospital as a case of pneumonia. The patient had a severe attack which ended fatally. Enterica diseases showed a slight increase, this being due to a greater number of typhosus cases namely, 36, as compared with 21. Paratyphoid infections were somewhat fewer. The increase in typhosus infections was due to a small local epidemic during August and September. The mortality rate was the same as last year.

In scarlet fever the increase in numbers is very striking, 2,402 cases having been dealt with as compared with 1,533 last year. The admission of patients in large numbers commenced in April, due to a milk epidemic occurring in the west end of the City. After a comparatively short lull in admissions the numbers began to rise rapidly in the early autumn and from then until the end of the year there was a steady demand which kept all the available accommodation constantly full. In type the cases were as a whole mild, the mortality rate being 1·6 per cent. This is slightly over the figure for 1930, namely, 1·3 per cent. The cases associated with the milk epidemic admitted to this hospital numbered 107 and of these two died. The fatal result in one case was due to the occurrence of a pneumococcal peritonitis and in the other to a cardiac condition which had been present previously. One rather striking feature of the cases was a high proportion of complications occurring during the course of the illness one-third of the patients being thus affected. The complications noted were cervical adenitis (16 cases), otorrhœa (10 cases with two mastoid infections), arthritis (7 cases), rhinitis (4 cases), albuminuria (2 cases) and acute nephritis (1 case).

Diphtheria showed a decrease, there being only 624 cases dealt with as compared with 744 last year. There was nothing of note in the clinical features of the disease and the mortality rate was somewhat lower, the figure being 4·2 per cent. as compared with 5·5 per cent. last year. Erysipelas cases also showed a decrease both in numbers and mortality rate, the respective figures being 537 and 7·6 per cent. this year, as compared with 744 and 9·3 per cent. last year. There were 91 cases of cerebro-spinal fever dealt with during the year, an increase of

30 over last year. The mortality rate remained very high, namely, 75.8 per cent. Both encephalitis lethargica and acute poliomyelitis showed a decrease in numbers, only 4 of the former disease and 2 of the latter disease being dealt with.

Acute primary pneumonia cases numbered 1,094, an increase of 281 over last year, so that they again account for a large proportion of the total cases treated in hospital. The mortality rate was somewhat less than last year, namely, 19.6 per cent. in place of 20.6 per cent. In connection with pneumonia an investigation is being carried out in conjunction with other institutions in the city regarding the treatment by means of specific anti-serum. The final results are not yet available, but there appears to be distinct indication that this form of treatment does offer definite advantages in suitable cases. The fact that early injection of the serum offers the best chances of success is a strong argument in favour of early admission to hospital, a practice which at present is by no means universal.

Bacillary dysentery cases showed a decrease (25 cases as compared with 37) and the mortality rate remained the same. Measles continued to be prevalent throughout the winter and spring and 548 cases were treated in hospital, a figure only slightly lower than that of the previous year. The mortality rate was higher, 15.0 per cent. as compared with 10.7 per cent. in 1930. This high rate can be explained by the seriousness of the cases selected for admission to hospital. There was a marked increase in the number of whooping-cough cases treated, namely, 417, as compared with 157 in 1930. The mortality rate was increased to 26.4 per cent. from 24.0 per cent., the figure for the previous year. As with measles this increase can be explained by the selected character of the cases. One case of anthrax was treated. It occurred in a girl who had contracted it at her work in a carpet factory. Treatment was by Selavo's Serum and a satisfactory recovery ensued.

The Visiting Aural Surgeon attended 594 patients of whom 331 were new cases seen for the first time. The conditions dealt with included otitis media, mastoid disease, enlarged tonsils and adenoids, laryngitis, antrum disease, rhinitis and many others. The Surgeon performed 115 operations, of which the majority consisted of removal of tonsils and adenoids for persistent aural or nasal discharge and persistent positive swabs after cases of diphtheria.

Dr. H. Baxter, Medical Officer in charge of the Tuberculosis Section of the hospital, presents the following report on the work carried out in that department:—"In the Tuberculosis Section of the hospital in 1931, the pressure on the available accommodation for patients was maintained throughout the year, and the total number treated was 783, representing an increase on the previous year of 86 patients. In consideration of the fact that during the summer months each ward in rotation was closed for re-decoration, the number indicates a much greater increase on the previous year's total. The proportion of deaths to the total number of cases treated during the year was 29 per cent., an increase of 5 per cent. on the previous year's

figure. This increase is in direct proportion to the increase in 1931 of advanced cases of tuberculosis, from 261 in 1930 to 326 in 1931.

"The average stay in hospital per patient is worthy of note; this figure has fallen from five in 1929, four and a half in 1930, to four months in 1931. This indicates that the heavy claims for hospitalisation of advanced cases of tuberculosis are being met at the expense of the convalescent cases whose real sanatorium treatment must be prolonged to a more useful finish at some other sanatorium, or who must be discharged prior to attaining that degree of health required for medical dismissal from hospital. The types of cases remain unchanged, but there is a marked fall in the numbers of cases admitted suffering from diseases other than pulmonary tuberculosis.

"No changes of note have been made in the routine general treatment. Careful supervision of all patients with regard to rest, diet and graduated exercise has been maintained. Suitable cases are dealt with by special lines of treatment, *e.g.*, aspiration; aspiration combined with gas replacement, artificial pneumothorax, artificial heliotherapy, Gelatino-thorax has been performed with success in a few cases of pyothorax and seems worthy of further investigation. Collapse therapy has been more extensively used than formerly and there is now a large out-patient clinic established for continuance of treatment. It became necessary to provide facilities for dealing with so much operative work, and in December an operating theatre was established by converting part of a ward unit and equipping it with the necessary furnishings.

During 1931 the Medical Staff performed 78 dental extractions for the relief of pain. The necessity for the services of a Dental Surgeon to deal with oral sepsis in tuberculosis patients is still very real.

"Eight children and two adults suffering from abdominal tuberculosis were treated during 1931. Artificial heliotherapy proved of great value during convalescence. There were very few cases of surgical tuberculosis admitted during the year. There were 32 cases treated during the year suffering from the following diseases:—bronchiectases 8, bronchitis 5, pneumococcal empyema 2, cardiac disease 2, post pneumonic conditions 2, tuberculous meningitis 5, tumour 3, other conditions 5.

"The maintenance of discipline amongst the patients has been strictly observed and during the year complaints were few and satisfactorily dealt with. During convalescence the patients have taken full advantage of the recreational facilities afforded by the hospital."

W. M. ELLIOTT,
Physician-Superintendent.

KNIGHTSWOOD FEVER AND TUBERCULOSIS HOSPITAL.

The number of patients dismissed, including those who died during the year 1931 was 2,416, as against 2,389 for the previous year. All the wards were used for the treatment of fevers except two pavilions accommodating 80 patients with advanced phthisis. The number of fever patients dismissed from hospital was 1,953, while 217 died, making a total of 2,170 patients. The mortality rate was 10 per cent., as against 10.1 per cent. for the previous year.

Pneumonia.—The number of patients treated totalled 567. The mortality rate for the whole group was 16.7 per cent., which was greater than in the previous year when the mortality rate was 14.4 per cent. Out of the total number of 567 patients treated 150 patients merely suffered from bronchitis.

During the latter part of this year a bacteriological and clinical investigation of all the typical cases of lobar pneumonia, with special reference to the type of the pneumococcus present was carried out as in the previous year. This work involves daily blood cultures from all the suitable patients, in order, among other things, to ascertain if the pneumococcus invaded the blood stream at the beginning or at the end of the illness. Valuable information is being obtained from this work, which, will be recorded when completed. In addition an investigation was commenced in order to determine the carrier rate of the pneumococcus by convalescent patients and also by nurses in pneumonia wards as compared with patients and nurses in the other wards. The results from the latter investigation, when completed, may help in some small way in elucidating the manner in which the disease is possibly spread. It was thought that the casual organisms of broncho-pneumonia in children might be discovered by the method of lung puncture, but this method was abandoned because it was difficult to be certain that the needle penetrated the lung exactly over the patch of consolidation. It is now recognised that the better way is post mortem, when the cultures can be taken from the actual patches of consolidated lung.

Measles.—The number of cases treated was 356. The fatality rate, 17.4 per cent. was due to pneumonia alone or combined with enteritis.

During the year an investigation was made into the use of convalescent measles serum, in the prophylaxis of the disease. A very large amount of adult convalescent serum was obtained and every opportunity was seized in order to prove the efficacy of this preparation. The results amongst the contacts were very satisfactory, but as the work is still being continued a full account of the value of the treatment will be forthcoming later.

The investigation has not only in view the complete prevention of the disease, but also the effect of the injection of the serum in the different days of the incubation period and an estimation of the doses necessary at each point of time. Consequently, the apparent failure of the serum to protect was of service and the information gained should prove useful for future reference in the campaign against measles.

Scarlet Fever.—A very much larger number of patients was treated, 820 as against 585 for the previous year. The type of case was mild in character, the mortality rate being 1·2 per cent., as against ·68 per cent. in the preceding year. Ten deaths occurred among 820 patients and of these ten deaths only seven were directly attributable to scarlet fever, which is equivalent to a mortality rate of ·85 per cent. Of the seven fatal cases one was due to toxic scarlet fever, four to septic scarlet fever and two to endocarditis. The diagnosis of scarlet fever was not confirmed in the other three patients who died, and these three fatalities were attributable thus:—enteritis 1, tubercular meningitis 1, broncho-pneumonia 1.

The new concentrated antitoxin for scarlet fever was only administered to 40 actually ill patients as the type of case admitted was usually not very severe and the majority of the patients recovered quite well without the administration of the antitoxin. It is difficult to assess the value of the antitoxin unless it is administered to a large number of very severe or toxic cases. It is to be noted, however, that three patients suffering from a very toxic form of the disease made a very sudden and remarkable recovery after the intravenous injection of the antitoxin.

There were subjected to the Dick Test, eleven nurses, all of whom, however, were negative reactors and did not require to be actively immunised.

During the year the aurist visited weekly all patients suffering from otitis media and it was found necessary to remove the tonsils and adenoids of 27 of these patients, in order to hasten the drying up of the discharge. During the same period the conservative mastoid operation was performed on four occasions with a similar object.

Diphtheria.—A smaller number of patients was treated, 217 as against 257 for the previous year. The mortality rate was 3·2 per cent. as against 4·6 per cent. in the preceding year. Seven deaths occurred among 217 patients and of these seven deaths only three were directly attributable to diphtheria, which is equivalent to a mortality rate of 1·3 per cent. Of the three fatal cases one occurred after the operation of tracheotomy and two were due to cardiac paralysis. The diagnosis of diphtheria was not confirmed in the other four patients who died and these four deaths were attributable thus:—empyema 1, tubercular meningitis 2, broncho-pneumonia 1. All the severe cases were given rather large doses of the antitoxin intravenously as well as intramuscularly and the beneficial results of this treatment were much

more rapidly produced than if the serum had been administered by the intramuscular route alone. The aurist enucleated the tonsils and removed the adenoids of 6 patients who were found to be carriers, and in a very short time after the operation these patients were able to be dismissed.

The Schick Test was performed on seven nurses, two of whom were found to give a positive reaction and were later immunised with toxoid antitoxin mixture. One nurse, who was Schick positive and was immunised, had suffered from diphtheria twelve months previous to testing. One nurse, who was Schick negative in February, 1931, developed diphtheria four months later. One nurse, who was Schick negative in November, 1929, developed diphtheria in October, 1931.

Whooping-cough.—The number of patients discharged from hospital was 71 and 24 died, making a total of 95 patients. The majority of the deaths were due to pneumonia alone or combined with enteritis.

Pulmonary Tuberculosis.—During the past year 174 phthisis cases were discharged from hospital and 72 died, making a total of 246 patients. The hospital was mainly used for the treatment and isolation of the more advanced types of cases. As an illustration of this, no less than 88.2 per cent. of these cases were in an advanced stage of the disease on admission to the hospital. The following table shows the medical classification into which these patients were grouped when admitted.

Stage of Disease.				Number of Cases.	Number of Deaths in each Group.
Early,	...	...	...	5	—
Intermediate,	...	...	...	24	2
Advanced,	...	...	...	217	70
Total,				246	72

Details of each of these groups are shown in the following table:—

Stage of Disease.			Arrested	Much improved.	Improved.	Not improved.	Died.	Total.
Early Cases,	...	...	1	2	2	—	—	5
Intermediate,	...	...	1	9	10	2	2	24
Advanced,	...	...	2	30	69	46	70	217
Total,			4	41	81	48	72	246

NOTE.—The above table includes 26 patients who died within one month of admission.

Apart from careful nursing and attention to the general health no special form of treatment was adopted as the majority were in a very advanced stage of the disease. The health of the hospital staff was good, no illness of a very serious nature having occurred.

WILLIAM DOW,
Physician-Superintendent.

April, 1932.

KNIGHTSWOOD HOSPITAL.—STATEMENT OF CASES TREATED ACCORDING TO SEX.

DATA BASED ON DISMISSALS AND DEATHS FOR YEAR 1931.

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Disease.	Admitted.		Dismissals.		Died.		Remaining in hospital at 31st Dec., 1931		Mortality, per cent.		Average residence (days).				Ages.		Altered Diagnoses.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Male.	Female.					
Typhus Fever, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever, ...	2	6	3	5	—	1	—	—	—	—	16.7	41	56	—	1	2	1	—	3	3	3
Paratyphoid B., ...	1	—	1	—	—	—	—	—	—	—	—	39	—	—	—	—	1	—	—	—	1
(Continued Fever, ...	—	1	—	1	—	—	—	—	—	—	—	—	39	—	—	—	—	—	—	—	—
Puerperal Fever, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Smallpox, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scarlet Fever, ...	440	414	396	5	5	5	63	61	1.2	1.2	42	42	17	19	101	254	64	100	224	77	14
Diphtheria & Membr. Croup,	101	119	108	102	5	2	14	21	4.4	1.9	52	45	7	38	34	67	12	28	46	30	5
Erysipelas, ...	5	6	6	5	—	1	—	—	—	16.7	38	39	—	10	—	—	6	3	—	3	—
Cholera, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cerebro-spinal Fever, ...	7	3	1	—	7	3	—	—	87.5	100.0	42	—	11	4	4	1	3	—	2	1	7
Ophthalmia Neonatorum, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Trachoma, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Acute Encephalitis Lethargica, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Acute Poliomyelitis, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Acute Poliomyelitis, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Acute Primary Pneumonia,	359	152	312	144	65	22	22	14	17.2	13.3	31	32	11	12	133	84	160	92	23	51	13
Acute Influenzal Pneumonia,	26	9	17	9	8	—	1	—	32.0	—	30	28	11	—	5	20	1	—	8	1	—
Malaria, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dysentery, ...	1	5	1	3	—	—	—	2	—	—	41	33	—	—	1	—	—	—	2	1	1
Relapsing Fever, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pulmonary Tuberculosis,	4	1	4	1	—	3	—	—	—	—	20	18	—	—	—	4	—	1	2	1	—
Other forms of Tuberculosis,	188	235	133	161	31	31	24	43	18.9	16.1	31	27	11	9	139	16	9	134	27	31	1
Measles, ...	—	—	—	—	—	—	—	—	—	75.0	—	13	—	4	—	—	—	—	—	—	—
German Measles, ...	1	2	1	4	—	—	—	—	—	—	48	19	—	—	1	1	—	1	1	2	1
Whooping-cough, ...	43	46	32	39	14	10	—	—	30.4	20.4	64	59	21	8	40	6	—	45	4	—	—
Chickenpox, ...	—	2	—	2	—	—	—	—	—	—	20	—	—	—	—	—	—	—	2	—	—
Bubo, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mumps, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Child with Mother, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No apparent Disease,	3	4	3	4	—	—	—	—	—	—	7	14	—	—	2	1	—	3	—	1	—
Others, ...	5	12	3	10	2	2	—	1	40.0	16.7	44	31	4	33	1	1	3	7	—	5	2
Unclassified, ...	2	26	2	25	—	—	—	1	—	—	32	15	—	—	—	—	2	—	—	25	—
Totals,...	1,188	1,053	1,041	912	137	80	124	143	11.6	8.1	39	37	12	11	457	437	284	415	336	241	48
Phthisis, ...	214	—	174	—	72	—	37	—	29.3	—	127	—	78	—	—	1	245	—	—	—	—

SHIELDHALL FEVER HOSPITAL.

During the year 1,060 patients passed through the hospital, a decrease of 12 as compared with the previous twelve months. The general death-rate was 7·3 per cent. as compared with 9·2 per cent. for 1930. This mortality rate, the lowest for many years, is associated with a relatively high incidence of scarlatina as compared with pneumonia and diphtheria. The largest number of beds occupied was 130, on 29th November, and the smallest 59, on 13th August, the average being 96. There were two cases of infectious disease among members of the staff, both nurses suffering from scarlatina.

Considerable publicity was given to a complaint of a patient that the hospital was infested with ants. It is true that these insects, of the species *Monomorium pharaonis*, have been found in the wards for at least twenty years, but with proper precautions as to the disposal of food the patients suffer no inconvenience. Following the complaint energetic measures were taken to reduce their numbers, such as ward fumigation, the placing of baits in wards and basements, and the blocking of the heating-ducts, which are their lines of communication. Thousands of queen ants were caught in a single week-end in the engine-room. Little apparent difference to their total numbers has been observed, however, and it is questionable whether further measures are desirable, since the red ant is harmless, and indeed beneficial to man by its remarkable powers as a scavenger.

Scarlatina.—442 patients were treated. While most of them had a mild illness, severe septic cases were by no means uncommon, and discharging ears and nose occurred in 9·0 and 15·8 per cent. respectively. Among other complications were cervical adenitis, 23 per cent.; arthritis, 4·7 per cent.; and albuminuria, 1·1 per cent. There were three examples of pneumonia, one of jaundice and three of scarlatina reinfection. The low mortality rate—under a half per cent—is satisfactory. Only one of the two deaths is really attributable to scarlatina, viz., a child of four years in whom severe aural infection was followed by streptococcal meningitis. The other resulted from the occurrence of measles coincident with scarlet fever.

Operations performed by Aural Surgeon were more than double those of 1930, and were as follows:—tonsillectomy 14, myringotomy 2, mastoid operation 3. Total number of patients attended, 43. Results of operative treatment:—

		Otorrhœa.	Rhinorrhœa.
Immediate cessation of discharge,	...	2	1
Gradual improvement,	... ..	6	3
No improvement,	... ..	2	3
		<u>10</u>	<u>7</u>

As regards return cases, mention was made in last year's Report of the measures taken to limit the number of these infections. During 1931 thirteen patients were admitted within a few days of the release from hospital of a relative. Three of these can be excluded; one who came in after an interval of less than 24 hours, and two others who had been nursing doubtful cases of scarlatina at home. This leaves ten true return cases, a rate of 2·3 per cent. of dismissals.

Diphtheria.—225 patients were treated, the following being the types observed:—faucial, 208; faucial and nasal, 6; faucial and laryngeal, 2; and laryngeal, 9. Severe cardiac symptoms occurred in seven patients, and paralysis in fourteen. Cases of croup were remarkably infrequent, so that tracheotomy was not required throughout the year. The death-rate of 2·2 per cent. is low, and the fatal cases may be briefly summarised.

- (1) 7 months, laryngeal, admitted moribund.
- (2) 3 years, severe faucial, collapse and death on 4th day.
- (3) 6 years, faucial and nasal, toxic and hæmorrhagic, death on 11th day.
- (4) 10 years, faucial and nasal, paralysis and cardiac failure, death on 11th day.
- (5) 16 years, faucial, death from pneumonia after 3 weeks.

Pneumonia.—316 patients were treated, with a mortality rate of 16·1 per cent. No specific treatment had been adopted, but when necessary oxygen administration and injections of S.U.P. 36 (British Drug Houses, Ltd.) were given, often with considerable benefit. Empyema again calls for notice. No less than 16 patients developed this complication, with an age-distribution as follows:—under four years, 4 (youngest, 2); under six years, 4; under fourteen years, 5; and over fourteen, 3. In seven the right side was affected, in seven the left, and in two the condition was bilateral. The pus was invariably of pneumococcal type. Rib-resection was performed in each case, and closed drainage instituted, local anæsthesia being sufficient in all but three instances. In seven, irrigation with Dakin's solution was used to accelerate expansion of the lung. The results were favourable; one death—the oldest patient, a man of 54, from pneumococcal meningitis; one irregular dismissal, before healing was complete; and fourteen perfect recoveries. The duration of residence of such patients (average, 81 days) is necessarily long. Open air treatment, as on a verandah, would no doubt materially reduce the period.

Measles.—60 patients were treated during the last two months of the year, with the high mortality rate of 23·3 per cent. As usual, pneumonia was by far the most serious complication, and indeed, all but one of the deaths was due to it. Two empyemas, one of which was

streptococcal, ended fatally. The only non-pulmonary death resulted from croup, and took place some hours after tracheotomy had been performed. Enteritis was comparatively mild. Several severe eye infections were observed.

Other Diseases.—The remaining 17 cases included four of cerebro-spinal fever—all fatal within 3 days of admission; one of tuberculous meningitis; and twelve non-infectious conditions. 24 diagnoses were revised during the year.

WILLIAM NAPIER,
Physician-Superintendent.

SHIELDHALL HOSPITAL—STATEMENT OF CASES TREATED ACCORDING TO SEX. DATA BASED ON DISMISSALS AND DEATHS FOR YEAR 1931.

Disease.	Remaining in Hospital 31st Dec., 1931.				Mortality per cent.				Average Residence (days).				Ages.				Aetiological Diagnosis
	Admitted.		Dismissed.		Died.												
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Males.	Females.	
Enteric Fever, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Scarlet Fever, ...	206	238	209	231	1	1	20	21	0.5	0.4	39	34	95	22	65	127	18 51 146 35 5
Diph. and Memb. Croup	104	118	96	124	4	1	21	17	4.0	0.8	44	45	11	12	36	52	12 31 72 22 6
Cerebro-spinal Fever,	2	2	—	—	2	2	—	—	100.0	100.0	—	—	3	17	2	—	2 — — —
Lobar Pneumonia, ...	114	56	100	47	15	8	7	6	13.0	14.5	29	28	12	3	18	30	67 5 22 28 9
Broncho-pneumonia, ...	81	68	64	54	12	16	10	3	15.7	22.8	23	25	9	9	71	3	2 60 4 6 1
Measles, ...	34	40	21	25	6	8	7	7	22.2	24.2	22	22	13	7	27	—	31 — 2 2
German Measles, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	— — — —
Whooping-cough, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	— — — —
Non-pulmonary tuberculosis, ...	1	—	—	—	1	—	—	—	100.0	—	—	—	38	—	—	1	— — — —
Other affections, ...	6	6	6	6	—	—	—	—	—	—	14	19	—	—	2	3	1 2 2 2 1
Totals, ...	548	528	496	487	41	36	65	54	7.6	6.9	171	173	181	70	221	216	100 182 246 95 24

ROBROYSTON HOSPITAL.

The end of the past year marked what was really the first year of a new phase at Robroyston Hospital. The transference or dismissal of practically the whole child population and its replacement by adults has given an opportunity to those previously accustomed to deal with child and adolescent tuberculosis of studying the later results, both in patients previously treated at Robroyston Hospital and elsewhere. The same set of circumstances has allowed of an assessment being made of the value of the previous lines of treatment, and as a result newer and probably less conservative methods have been adopted. The interest lies not so much in questioning the suitability of these methods for the type of lesion now dealt with, but in theorising as to how far such or similar measures could be applied to young patients and so prevent the recurring hospitalisation which forms such a large part of the tuberculous patient's life.

The change in the type of lesion dealt with has rendered useless much of the information given in previous tables. A fresh set has been drawn up, and an attempt has been made to render these less statistical and more clinical. Columns dealing with the constituent items of treatment have been discarded, since such information as they gave in the past will now be given elsewhere, while treatment has been dealt with under the headings of conservative and radical or operative. The main principles involved in the use of these terms have been sufficiently stressed in previous reports. Slight modification may also be found in the tables devoted to glandular and abdominal tuberculosis. It is felt that they offer more scope for purely clinical comparison of the various methods of treatment. As similar reports become added to the present one definite conclusions may be obtained.

In addition to the treatment of tuberculosis in its various forms during the year, a pavilion was devoted to pneumonia and one to puerperal fever, in respect of which separate reports are submitted. As promised in the report for 1930, the work done in the pavilion for puerperal fever has been dealt with in some detail.

CERVICAL ADENITIS.

Table No. 1.—The number of patients remains comparable to the past year's figure. The fact that those showing late disease with abscess and/or sinus formation had been treated conservatively is significant. Comparison of the persistently good results of operative treatment with the definitely poorer figures for the group treated by non-operative measures adds weight to the impression that radical removal of the early gland mass is the surest cure. With modern technique the æsthetic advantages claimed for the conservative methods of liquefaction and aspiration are outweighed by the thoroughness of an operation and the great saving of time. In many of the

later lesions the most satisfactory result attainable was healing of long-standing sinuses. There were no deaths in this group. The average residence was 112 days.

SPINAL CARIES.

Table No. 2.—The number for the year has dropped back to previous years' figures. The increasing proportion of patients admitted with slight or no deformity, and the very considerable decrease in the numbers admitted without abscesses or sinuses, are gratifying features. The futility of attempting to secure permanent healing of sinuses from major tuberculous lesions has frequently been stressed. The exact proportion of patients treated during the year who had already had institutional treatment for spinal caries cannot be given. It is felt that had more rigid ankylosis of the lesion been attained by the first treatment of these patients, recurrence of the disease would have been obviated. With this end in view, open operations such as Albee's and Hibbs's will in future be given careful consideration in suitable cases. The results of lesions so treated have already shown perfect immobilisation of the affected part. Since the larger number of patients dismissed in 1931 had already been in residence some considerable time and were unwilling to have their stay further lengthened, the full value of the treatment cannot be shown in this year's report. Average residence 883 days.

TUBERCULOSIS OF BONES OTHER THAN SPINAL.

Table No. 3.—Seven patients less than in 1930 were dismissed during the past year under this heading. Including as it does a very large proportion of patients with gross sinus formation, the scope offered for operative interference is obvious. In most instances this has consisted of sequestrectomy; a few patients had bone grafting done as a reparative measure. The persistence, in a high number of patients, of sinus formation need not occasion undue concern. Many of the bones affected are very superficial, and the abscesses correspondingly so. While the resultant sinuses on the whole heal satisfactorily, there can be little doubt that many sinuses could be avoided by earlier aspiration. The rather high number discharged other than fit is accounted for by the transference of numerous young patients to Mearns Kirk Hospital in the early part of the year. The average stay in hospital here was 330 days, a decrease from last year.

TUBERCULOSIS OF THE HIP JOINT.

Table No. 4.—Again a fall in the number of dismissals is to be recorded. The proportion of patients who had neither abscess nor sinus on admission is a point of the first importance. The absence of sinus formation is of particular significance from the point of view of operative possibility, and it is hoped that a similarly good type of lesion will continue to be admitted. A view rapidly gaining ground is that since truly movable hips seldom result from conservative treatment, the more certain the ankylosis the more per-

manent is the absence of deformity; it is recurring deformity which causes many patients to return to hospital. The advantages of bony ankylosis over even the best fibrous union are thus obvious. Ideally the operative treatment for these purposes should not involve opening of the joint itself, and such an operation is possible in any of the forms of extra-articular arthrodesis. No figures are yet available for this operation, but work on these lines is in hand. There has been a rise in the average residence, the figures for this year being 827 days.

TUBERCULOSIS OF JOINTS OTHER THAN HIPS.

Table No. 5.—Thirty-four patients were discharged during the year. Including, as it does, both large and small joints, the table cannot give any but the most meagre information. Generally speaking smaller joints gave best results when treated conservatively, while many of the large joints and chiefly the knee joint, required open operation before a satisfactory result was attained. A similar state of affairs is expected to persist, and the comments made for Table No. 4 apply here also to a considerable degree. It is felt, however, that open operation of any variety is contraindicated before quiescence has been reached by conservative methods. The average residence for this group was 360 days, a considerable decrease on last year's figures.

ABDOMINAL TUBERCULOSIS.

Table No. 6.—In place of columns giving the predominant sign or symptom for each patient, the occurrence of any of these tabulated has been recorded. This method will give a clearer idea of the incidence of the various manifestations of the disease as it affects the abdomen. While the divisions into type (acute, sub-acute, and chronic) remain much as for last year, a rise in the death rate is to be noted. Otherwise the table shows little of note. The average residence was 133 days.

MULTIPLE LESIONS.

Table No. 7.—As in past years this table does not include patients with a gross pulmonary lesion, which have been referred to phthisis pulmonalis. Apart from the decrease in the number of patients discharged and a fall in the average residence from 658 days to 508, the table compares closely with that of last year.

GENITO-URINARY TUBERCULOSIS.

Table No. 8.—Twenty-three patients were dismissed as against seventeen in 1930. A large proportion of the genito-urinary lesions were treated as radically as possible and with very satisfactory results. The average residence was 153 days.

TREATMENT.

Non-pulmonary Tuberculosis.—It has been already hinted that both the type of lesion dealt with and the methods of treatment have changed to some extent as the result of experience. Patients suitable for pure conservative treatment have been less numerous; a majority

of new admissions being unfortunately far advanced in their illness. With the provisos already mentioned, conservative treatment by aspiration of abscesses before or after modification of the contents, and partial or complete immobilisation have been practised where indicated. It may in fact be postulated that no matter what course is to be pursued eventually, all bony lesions benefit by being placed for some considerable period under a conservative regime. During 1931 there were carried out 1,366 aspirations, or rather more than in 1930, and 145 injections of modifying fluids were made. In many lesions the healing of sinuses, recent or in some instances of very old standing, was all that could be hoped for. To this end 280 injections of antiseptic pastes were given, and, on the whole, the results were satisfactory. A number of patients with sinus formation with much discharge were treated by frequent (four-hourly) instillation of sterile glycerine, but no dramatic results were noticed. Increased cleanliness and a healthier appearance of the wounds were features, but healing was not apparently accelerated. Possibly the treatment has some value in lesions too dirty to treat by paste injections when first seen. Many such patients benefited by the removal of sequestra and improved drainage, followed by antiseptics.

Artificial Heliotherapy.—As many patients as possible have been given artificial heliotherapy, but the type of case received has offered considerable difficulty in daily transport. In the past year 175 patients received exposures which number 12,121. Both figures are slightly lower than in 1930.

Appliances.—Earlier and more complete immobilisation seems to have been practised in 1930. The dangers associated with the early closing in of a lesion by a plaster splint are rather exaggerated and can be minimised by increased watchfulness on the part of the medical attendant. Close on 300 plaster splints were applied in 1931, and the number of certalmid and other more permanent splints increased from 150 to 165. In addition to this the work of the treatment block included 156 operations. All of these required anæsthesia, and the number does not include teeth extractions and tonsillectomies.

The treatment of renal tuberculosis has been modified by the presence of many patients in whom radical removal of a focus was impossible. Such patients as those with bilateral renal disease, or disease in a remaining kidney, have been helped by tuberculin. The results have been consistently good, and in some instances have amounted to clinical cure. In this group 436 injections of old tuberculin have been given. With carefully graduated dosage and the avoidance of any reaction, the hopelessness of advanced renal phthisis is much lessened.

Treatment (Pulmonary Tuberculosis).—Treatment continued along the accepted lines during 1930. In the majority of patients collapse therapy cannot be employed, and for these gold salts have continued to be used with advantage. The type of lesion suitable for Sanoerysin

or its equivalent—a British product is now in use with equally good results—does not seem to be so limited as was previously thought. All stages of the disease seem to be benefited, some more lastingly than others. Small doses have been used consistently, the average quantity given at a time having been .2 gramme. In all 410 injections were given. A small group of patients received injections of colloidal calcium and iodine at the hands of Dr. E. C. Macdonald. Though continued for a lengthy period, no marked change could be found in the lesions. Recorded increase in weight and a feeling of well-being could well be attributed to the psychic effect of more active treatment than sanatorium routine.

Artificial pneumothorax was induced whenever possible. In the female pavilion suitable patients were not infrequently received, but the males admitted were almost all too advanced in their disease. Similar comment was made in the report for 1930. Including unsuccessful attempts at induction 37 patients were treated, 28 of these developing a therapeutic pneumothorax. These involved the giving of 592 refills. The simplicity of the operation, the freedom from serious complications either at induction or during maintenance, and the speedy and, on the whole, lasting benefit derived cannot be sufficiently stressed. It is very questionable if any patient with an early lesion should be denied an artificial pneumothorax. In addition to warded patients, 26 out-patients attended and 350 refills were given.

The number of patients admitted suitable for thoracoplasty remains disappointingly low, and the number of operations done correspondingly so. Several admissions recommended for thoracoplasty were deemed unsuitable. For this, which is a major operation, good general condition and freedom from active or gross inactive disease on the sound side are essential. Even so limited, there must be many who would derive benefit from the collapse. Since the first patient treated, 13 thoracoplastic operations have been undertaken, 10 of these for tuberculosis. In bronchiectasis the results do not justify the operation, but in tubercle there have been no deaths, and all but one patient have derived very great benefit.

The following table indicates the state of nutrition of the various groups of tubercular patients on admission:—

Disease.				Good.	Fair.	Poor.	Total.
Pulmonary Tuberculosis—							
Early, ... ..	...	...	...	4	12	14	30
Intermediate, ... ..	...	...	...	11	39	26	76
Advanced, ... ..	...	...	...	10	48	76	134
Non-tuberculous, ... ..	...	...	...	4	16	14	34
Other Forms of Tuberculosis—							
Spine, ... ..	...	...	...	12	26	18	56
Glands, ... ..	...	...	...	10	9	3	22
Bones other than Spinal, ... ..	...	...	...	8	8	2	18
Hip Joint, ... ..	...	...	...	12	21	9	42
Joints other than Hip, ... ..	...	...	...	11	10	13	34
Abdomen, ... ..	...	...	...	3	9	18	30
Multiple, ... ..	...	...	...	4	10	8	22
Genito-urinary and Miscellaneous, ... ..	...	...	...	9	8	6	23
Totals,				98	216	207	521

Dental Treatment.—During the year Dr. Hugh M'Kay, L.D.S., made 46 visits, and the dental work carried out is as follows:—

Fillings—					
Amalgam,	...	...	...	...	110
Cement,	...	...	...	...	34
Dressings with temporary fillings,	...	...	...	...	22
Extractions with local anæsthesia,	...	...	...	...	372
Extractions with general anæsthesia,	...	...	...	...	45
Scaling,	...	...	...	...	498
Pulpitis cases,	...	...	...	...	3
Examinations,	...	...	...	...	300
Complete upper and lower dentures,	...	...	...	...	2

Laboratory.—The following examinations have been carried out during the year:—

Sputum for tubercle bacillus,	...	...	3,175
Throat cultures for diphtheria,	...	...	90
Urines (microscopical investigations, cultures, &c.),	...	...	672
Miscellaneous (see puerperal report),	...	...	688
Cultures from sinuses,	...	...	14

Education.—The tuition of ambulant children and those confined to bed was carried on along the usual lines by two teachers provided by the Education Department of the Corporation. The average number of children on the rolls was 52, and the average daily number receiving tuition 47 approximately.

During the year 34 non-tuberculous patients were treated as follows:—Cerebral tumour, visceroptosis, carcinoma of lung, lymphosarcoma of abdominal glands, unresolved pneumonia right lung, bronchiectasis, cerebral abscess, coxa vara left hip, endocrine insufficiency, septic adenitis, tumour of larynx, chronic bronchitis, post-pneumonic fibrosis, apical catarrh and septic tonsils, cerebral abscess, rheumatoid arthritis, pneumococcal empyema, post-pneumonic fibrosis of lung, carcinoma of peritoneum, carcinoma of spine, basal bronchiectasis, Friedreich's ataxy, osteoarthritis of spine, snapping hip, Hodgkin's disease, bronchitis, one each; mediastinal tumour, two cases; hysteria, two cases; no abnormality found (under observation for pulmonary tuberculosis), four cases—total, 34.

Pneumonia.—The pavilion reserved for female pneumonia patients in October, 1930, remained open throughout 1931, and treated 259 cases, 204 of these being children under 15 years. There were 141 cases of broncho-pneumonia with 26 deaths, the death-rate being 18·4 per cent. The increase on the death-rate for 1930 was mainly due to

a more severe type of disease and the more strict separation of cases of bronchitis from broncho-pneumonia.

The following table shows the number of cases and the mortality rate in the various age groups:—

	Under 1	1-	2-	3-	4-	5-	10-15	Over 15	Total
Number treated, ...	38	44	25	13	1	16	3	1	141
Number of deaths, ...	15	6	3	2	—	—	—	—	26
Mortality percentage,	39.5	13.6	12.0	15.4	—	—	—	—	18.4

Lobar pneumonia provided 55 cases, of which 5 died, giving a death-rate of 9 per cent. The lowness of this figure appeared to be due to the fact that nearly a third of the cases were in children under 15 years, none of whom died.

The following table shows the number of cases and mortality rate in the different age groups:—

	Under 5.	5-	15-	30-	Over 45.	Totals.
Number treated, ...	2	17	15	14	7	55
Number of deaths, ...	—	—	1	2	2	5
Mortality percentage,	—	—	6.7	14.7	28.6	9.0

Seven cases of influenzal pneumonia were treated without any deaths. Of the remaining 56 cases treated, 44 were classified as bronchitis, 3 as pulmonary tuberculosis, and 2 as cardiac disease.

PUERPERAL SEPSIS AND PYREXIA.

For convenience all patients dismissed from the opening of the pavilion for puerperal fever and pyrexia in October, 1930, till December 31, 1931, have been dealt with together. This report therefore amplifies the short note given in the report for last year.

Synopsis of all Dismissals.—The following grouping is given:—

	Total.	Deaths.
Puerperal sepsis following delivery of a viable child,	260	33
Do. do. do non-viable child,	71	11
Instances of altered diagnosis (exclusive of abortions),	23	3
Abortions (not septic), ...	35	—
Total, ...	389	47

The mortality for all forms of post-partum sepsis is 13.3 per cent. To show the incidence of primiparity, multiparity, duration of pregnancy, and complications of pregnancy, the attached table is given in respect of all cases of verified sepsis. The deaths are given in raised figures.

TABLE NO. 1.—VERIFIED SEPSIS IN ALL PATIENTS DISMISSED SINCE 8th OCTOBER, 1930, TO 31st DECEMBER, 1931. DEATHS IN RAISED FIGURES.

AGE GROUPS.	PRIMIPARÆ.	MULTIPARÆ.	TOTAL.	DURATION OF PREGNANCY.				COMPLICATIONS OF ALL PREGNANCIES OVER 28 WEEKS.				Number of Deaths.
				NON-VIABLE.		VIABLE		Hæmorrhage (exclusive of Abortion).	Eclampsia or Albuminuria.	Hyperæmesis.	Other.	
				Under 16 Weeks.	Over 16 Weeks and Under 28 Weeks.	Born Alive.	Stillborn.					
15-.	—	—	—	—	—	—	—	—	—	—	—	—
20-.	17 ¹	2	19 ¹	2	—	16 ¹	1	—	3	2	—	1
25-.	41 ³	21	62 ³	6 ¹	3	47 ¹	6 ¹	3	8	4	9 ¹	3
30-.	31 ¹	75 ¹⁰	106 ¹⁴	16 ⁴	5	78 ¹⁰	7	5	9 ¹	14 ¹	13 ³	14
35-.	10 ⁵	73 ⁶	83 ¹¹	19 ⁴	4	52 ⁶	8 ¹	12 ²	8 ¹	12 ²	9	11
40-.	4 ¹	43 ¹¹	47 ¹²	12 ²	—	33 ¹⁰	2	1	7 ³	4	8 ¹	12
45-.	2	10 ³	12 ³	3	1	6 ¹	2 ²	1 ¹	1 ¹	—	1 ¹	3
45-50.	1	1	2	—	—	2	—	—	—	—	—	—
Total.	106 ¹⁴	225 ³⁰	331 ⁴⁴	58 ¹¹	13	234 ²⁹	26 ⁴	22 ³	36 ⁶	36 ³	40 ⁶	44

There seems to be little difference between the death-rates for primiparæ and multiparæ of all ages, but over the figures available the rate rises for the later years. Of the complications of pregnancy the least serious, in so far as these may influence the occurrence of sepsis, would seem to be hyperæmesis gravidarum. The complications grouped as "other" were as follows:—Anæmia 8, myeloid leukæmia 1, pulmonary tuberculosis 1, bronchiectasis 2, broncho-pneumonia 1, bronchitis 5, influenza 2, pyelitis 1, cystitis 1, salpingitis 4, uterine displacements 3, acute appendicitis 1, varix of leg 1, injury 3, rheumatic endocarditis 1, exophthalmic goitre 1, encephalitis lethargica 1. The deaths noted for this column were associated with anæmia 3, otitis media, endocarditis, and influenza. Five patients were delivered of twins. In no instance did the mother die. Illegitimacy was noted in 20 cases. Three of these patients died, two following post-abortion sepsis.

Place and Type of Delivery.—Deaths are shown in raised figures.

				Instrumental.	Spontaneous.
At home,	...	...	...	51 ¹²	180 ¹⁸
In institutions,	...	...	...	9 ²	20 ¹

The higher death-rate for instrumental delivery (23 per cent.) as against that of spontaneous delivery (9·5 per cent.) is much as expected. Of the sixty operative births, all were forceps deliveries except four, viz., episiotomies 2, hook and crochet 1, induced labour (bougies) 1.

Attendance at Birth.—Presuming the technique for delivery of all children over seven months in utero to approach that for a

full-time birth, the attention given at 260 confinements was as follows:—

	Total.	Deaths.
Doctor alone,	25	2
Doctor and Midwife,	105	21
Midwife alone,	122	10
Handywomen alone,	5	—
No attention,	3	—
Total,	<u>260</u>	<u>33</u>

For normally conducted confinements division may be made as follows:—

	Total.	Deaths.
Doctors (with or without assistance),	70	9
Midwives or others,	130	10

Condition and Manner of Birth of Placenta.—

	Total.	Deaths
Spontaneous delivery of child—		
Placenta whole and normal, ...	182	18
Placenta broken and normal, ...	13	1
Manually removed whole or broken,	4	—
Operative delivery of child—		
Placenta whole and normal, ...	53	10
Placenta broken and normal, ...	4	2
Manually removed whole or broken,	4	2
Total,	<u>260</u>	<u>33</u>

Vaginal Examinations.—With a view to establishing any relationship between previous vaginal examinations in normal confinements the following figures are taken out. These do not include operative delivery of either child or placenta.

	Total.	Deaths.	Rate.
No examinations or no information,	72	6	8.5%
Examination shortly before or during labour,	123	13	10.5%
One examination,	78	7	9.0%
Two examinations,	23	2	8.0%
Repeated examinations,	22	4	18.0%

The death-rate following repeated (i.e. more than two) examinations is higher than any other figure.

The following table shows (1) day of onset of illness, (2) difference in days between onset of illness and hospitalisation, (3) duration in days of primary fever in hospital. All are shown separately for spontaneous and operative births, with deaths in raised figures.

	Days	1	2	3	4	5	6	7	8	9	10	-14	-21	21+	Total
(1) Spontaneous,	...	20 ⁵	34 ⁶	35 ⁷	22	15	8	9	4	8	11	17 ¹	12	5	200 ¹⁹
Operative,	...	13 ⁵	9 ⁴	20 ⁵	3	3	2	3	—	1	1	2	2	1	60 ¹⁴
(2) Spontaneous,	...	15 ²	49 ¹	32 ⁵	26 ⁴	15	13 ¹	13 ²	7	6 ²	5 ¹	11 ¹	5	3	200 ¹⁹
Operative,	...	5 ³	14 ³	9 ²	6 ³	8	5 ¹	3 ¹	3	—	3	1	1	2 ¹	60 ¹⁴
(3) Spontaneous,	...	13 ⁴	25 ⁶	17 ¹	19 ²	14 ¹	13	9	6	15 ¹	22 ²	13	26 ²	198 ^{18*}	
Operative,	...	0 ¹	8 ⁵	3	6 ²	6 ²	6 ¹	1	3	2	6 ¹	6 ²	3	10	60 ¹⁴

*Two patients had no fever following admission.

The grouping of practically all the deaths among those taking ill in the first three days of the puerperium illustrates an already known fact. The higher mortality figure for the operative group was also to be anticipated. Percentage mortality rates relative to the delay in hospitalisation cannot offer accurate information when based on such small groups. At present, however, the impression is that as regards most of the patients who died, death was almost inevitable whether they had been admitted earlier or not.

The following table gives the principal lesions found.

	Spontaneous Delivery.	Died.	Operative Delivery.	Died.
Perineal sepsis, ...	2	—	—	—
Vaginitis and cervicitis, ...	12	—	4	—
Subinvolution, ...	2	—	—	—
Retained infected products, ...	1	—	—	—
Retained infected lochia, ...	31	—	4	—
Septic endometritis and metritis, ...	39	—	8	—
Salpingitis, ...	20	—	3	—
Do. with local peritonitis, ...	3	—	2	—
Pelvic cellulitis, ...	13	1	4	—
Pelvic peritonitis, ...	7	—	1	—
General peritonitis, ...	6	4	5	4
Phlegmasia unilateral, ...	13	—	1	—
Do. bilateral, ...	8	1	2	—
Septicæmia clinical, ...	12	4	10	6
Do. verified, ...	24	9	12	4
Pyæmia clinical, ...	2	—	1	—
Do. verified, ...	5	—	3	—
Totals, ...	200	19	60	14

Generally speaking the incidence of the more severe forms of puerperal sepsis is higher in women delivered by operative means than in those normally confined. The essential lesion once developed, the method of delivery does not seem to affect the issue.

The nomenclature used requires explanation in some instances.

(1) The sub-division of salpingitis with or without local peritonitis is based on purely clinical grounds. The existence of some peritonitis in true puerperal salpingitis is almost certainly constant. Accordingly the words "with local peritonitis" refer to the patients in whom the peritoneal inflammation was dominant. (2) One death under the

term pelvic cellulitis is noted. The condition was more a pelvic lymphangitis, and is grouped here for convenience. There appeared to be no peritonitis and there was no septicæmia. (3) The advisability of sub-dividing septicæmia into septicæmia and pyæmia, and each again into clinical and verified must be open to question. The occurrence of more than one metastatic abscess has been used as the measure, since it had been noticed that such a happening improved the prognosis. The terms clinical and verified refer purely to the results of hæmoculture. (4) In several instances septicæmia and peritonitis were present, the latter being essentially a manifestation of the former. This combination proved the most fatal and almost the only hopeless combination of lesions. Differentiation has been based on the predominance of one or other lesion.

<i>Bacteriology.</i> —					Spontaneous Delivery.		Operative Delivery.	
					Total.	Died.	Total.	Died.
Streptococcus hæmolyticus,	...	...	...	...	81	10	33	8
Do. non-hæmolyticus,	...	...	...	...	30	1	5	—
Bacillus coli,	...	...	...	...	6	—	3	—
Pneumococci,	...	...	...	...	8	1	1	—
Streptococci and b. coli,	...	...	...	...	17	—	6	3
Do. and pneumococci,	...	...	...	...	7	1	4	—
Do. and staphylococci,	...	...	...	...	1	—	2	1
Staphylococci,	...	...	...	...	2	—	—	—
Streptococci, staphylococci, and pneu-	...	...	...	...	—	—	1	—
mococci,	...	...	...	...	—	—	—	—
Streptococci, coli, and pneumococci,	...	...	...	...	1	—	—	—
Do. and diphtheroids,	...	...	...	...	1	—	—	—
No growth,	...	...	...	...	14	—	2	—
No culture taken,	...	...	...	...	32	6	3	2
Total,	...	...	...	...	200	19	60	14

Septicæmias.—Total number of positive hæmocultures—44.

					Total.	Deaths.
Streptococcus hæmolyticus,	...	...	...	...	34	14
Do. non-hæmolyticus,	...	...	...	...	3	1
B. coli,	...	...	...	...	2	—
Pneumococci,	...	...	...	...	3	1
Staphylococci,	...	...	...	...	1	1
Streptococci and pneumococci,	...	...	...	...	1	1
Total,	...	...	...	...	44	18

The fact that of the pure streptococcal infections 76 per cent. should have been due to streptococcus hæmolyticus is in accordance with modern investigations. No differentiation of the streptococci was done as a routine where a mixed infection existed. Over the

whole number of lesions investigated 70 per cent. were associated with streptococci. Of the septicæmias the prevalence and fatality of a streptococcal infection is obvious. A number of cervical smears (150) were cultured for anærobic streptococci. The organism was found to be common enough particularly in mixed infections containing *B. coli*, and in eight instances it was found to be the sole organism present. Nothing can be said of its pathogenicity, but in the eight patients mentioned it was associated with very mild sepsis.

Abortions.—The total number of these dealt with was 106 (septic 71, non-septic 35), grouped as follows:—

		Non-septic.	Died.	Septic.	Died.
Threatened,	...	2	—	—	—
Inevitable,	...	7	—	1	—
Incomplete,	...	23	—	62	8
Complete, ...	...	3	—	8	3
Totals,	...	<u>35</u>	<u>—</u>	<u>71</u>	<u>11</u>

Classification of septic abortions:—

				Total.	Deaths.
Uterine sepsis,	...	...	...	45	1
Do. salpingitis,	...	...	...	8	1
Do. peritonitis,	...	...	...	7	3
Septicæmias,	...	...	...	11	7

The following organisms were found in cases of post-abortion sepsis (all forms):—*Streptococcus hæmolyticus* 20, *streptococcus non-hæmolyticus* 11, *B. coli* 14, *pneumococcus* 4, streptococci and *B. coli* 11, streptococci and staphylococci 2, no growth or no culture taken 9—total 71.

The comparison of the figures of post-partum and post-abortion sepsis shows a much higher proportion of *B. coli* infections in the latter group. In four instances, three of which resulted in death, police investigation took place. One prosecution and sentence resulted.

Treatment.—Since over 14 per cent. of all patients received did not suffer from puerperal sepsis, the reception into cubicles for grouping has been helpful. In busier times the cubicle accommodation has been inadequate, and bed isolation in the main wards has been found equally satisfactory. Glycerine medication has been very greatly used in conjunction with postural drainage. As a substitute for the repeated insertion of a catheter into the cervix a soft self-retaining catheter has been used. This, properly inserted when first examined, allows of glycerine injections whenever necessary in a manner more acceptable to both patients and staff. Abortions septic and clean have been for the most part cleared out under anæsthesia on admission. The results from the use of antistreptococcal serum have been dis-

appointing. Dramatic recovery in the worst cases has at no time been noticed, and in those moderately ill patients who coincidentally received serum and recovered, the impression was formed that recovery would have taken place equally surely without serum. For prophylaxis in clean abortions serum did seem to have value, although other factors entered into the prevention of infection of these patients. The results of chemotherapy have been doubtful. Arsenical preparations of various sorts have proved of more value in combating the resultant anæmia than in dealing with the infection itself. The recognised failure of the more used intravenous antiseptics justified the use of one lesser known compound. This substance (æthoxy-diamino-acridine lactate) was freely used in all severe cases. In the severest forms little change in the patients could be claimed, but in the milder septicæmias and prolonged fevers without localisation, the repeated injection of 100 cc. of a 1-1000 solution with a small amount of glucose often resulted in an almost dramatic fall in temperature. The feeling of well-being following an injection has been very noticeable. In spite of the better prognosis for pyæmias with gross abscess formation, the injection of various substances for the production of an abscess has been valueless.

Post-mortem Examinations.—In all twenty-two examinations have been made, three of these being at the instance of the Procurator Fiscal, and three to confirm the absence of puerperal sepsis. The chief lesions found were peritonitis and the various manifestations of septicæmia. In the purely peritonitic deaths the effusion varied from serous to purulent, the former being the commoner. Ileus paralyticus was found alone in one patient, though a streptococcus was recovered from the abdomen. In most the signs of local infection were slight. Most of the septicæmic cases showed little of note. Localisation was found chiefly in the lungs, the lesions varying from intense congestion to broncho-pneumonia and pulmonary gangrene. Peritonitis was common in this group.

JOHN WATSON,
Medical Superintendent.

8th June, 1932.

ROBROYSTON HOSPITAL.—TABLE SHOWING CASES DISMISSED AND DEATHS DURING THE YEAR 1931, AND THE AVERAGE RESIDENCE.

Disease.	Number of Cases Dis- missed.	Number of Deaths.	Duration of Residence.							Average.	Ages.			Result of Treatment.		
			- 30	- 50	- 100	- 150	- 200	- 300	300+		- 5	- 15	- 25	Much improved.	Im- proved.	Not im- proved.
Pulmonary Tuberculosis.	...	...												
Early, ...	30	—	1	—	8	5	7	3	6	212	1	12	10	7	19	1
Intermediate, ...	72	4	5	5	8	14	6	12	26	275	1	13	36	26	33	13
Advanced, ...	70	64	15	13	30	10	19	20	27	196	—	8	44	82	20	84
Other Forms of Tuberculosis—																
Glands, ...	22	—	3	3	5	7	1	2	1	112	2	1	10	9	13	3
Spine, ...	50	6	—	1	3	1	—	3	48	883	15	21	14	6	31	8
Bones other than spine, ...	17	1	1	—	1	3	1	5	7	330	1	1	6	10	13	3
Hip Joint, ...	37	5	2	—	2	—	—	1	37	827	12	14	11	5	21	9
Joints other than hip, ...	31	3	1	3	3	4	2	5	16	360	2	6	16	10	24	4
Abdomen, ...	19	11	2	—	11	5	4	4	4	133	2	2	18	8	17	12
Multiple. ...	17	5	2	2	1	3	1	—	13	508	3	2	12	5	3	13
Genito-Urinary and Miscellaneous, ...	19	4	2	1	4	9	1	4	2	153	—	1	3	19	1	4
Non-Tuberculous, ...	24	10	8	2	9	3	7	3	2	114	—	8	10	16	10	14
Total, ...	408	113	42	30	85	64	49	62	189	348	39	89	190	203	205	168

TABLE No. 1.

CERVICAL GLANDS.

Age Groups.	CONDITION ON ADMISSION.				Total.	TREATMENT AND RESULTS.						TOTAL.	DEATHS.
	Early.	Intermediate.	LATE.			1. Radical Removal.	2. Partial Removal and Scrapings.	3. Aspiration and Injection.	4. Non-operative Alone.				
			With Abscess.	With Sinus and/or Abscess.					Result Good.	Result Fair.			
—15	1	1	—	—	2	—	—	—	—	1	1	2	—
—20	—	4	2	2	8	4	—	—	—	2	2	8	—
—25	—	1	—	2	3	2	—	—	—	—	1	3	—
—30	—	1	—	—	1	1	—	—	—	—	—	1	—
—35	—	3	—	2	5	2	1	—	—	1	1	5	—
—40	—	—	1	1	2	1	—	—	—	—	1	2	—
—45	—	—	—	1	1	—	—	—	—	1	—	1	—
—50	—	—	—	—	—	—	—	—	—	—	—	—	—
50+	—	—	—	—	—	—	—	—	—	—	—	—	—
Total,	1	10	3	8	22	10	1	—	—	—	5	6	22

TABLE No. 2.

SPINES.

Age Groups.	CONDITION ON ADMISSION.						TREATMENT AND RESULTS.													
	DEFORMITY.			With Abscess Alone.	With Sinus Alone.	With Abscess and Sinus.	Without Abscess or Sinus.	Total.	TREATMENT MAINLY RADICAL.						TREATMENT MAINLY CONSERVATIVE.					
	None.	Slight.	Marked.						Sinus developed from Abscess in Course of Treatment.	Sinus Healed in Course of Treatment.	Discharged Ambulant.	Deaths.	DEFORMITY		Sinus and Abscess Healed in Course of Treatment.	Discharged Ambulant.	Deaths.			
													Improved or Compensated.	Not Improved.						
—15	9	18	9	4	1	3	22	36	1	—	—	1	—	8	19	—	7	11	—	24
—20	1	4	5	3	1	1	5	10	—	—	—	—	—	—	9	1	2	5	3	2
—25	1	2	1	—	—	1	3	4	—	—	—	—	—	—	3	—	—	3	1	1
—30	—	1	—	—	—	—	—	1	—	—	—	—	—	—	1	—	—	—	1	—
—35	—	—	1	—	—	—	1	1	—	—	—	—	—	—	1	—	—	1	—	—
—40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—50	—	3	—	—	—	—	3	3	—	—	—	—	—	—	3	—	—	2	1	—
50 +	—	1	—	1	—	—	—	1	—	—	—	—	—	—	1	—	—	—	—	1
Total,	11	29	16	8	2	6	40	56	1	—	—	1	—	8	37	1	9	22	6	27

TABLE No. 3.

BONES other than Spinal.

Age Groups.	CONDITION ON ADMISSION.				Deformity on Admission.	TREATMENT WHOLLY CONSERVATIVE.						TREATMENT INCLUDED OPERATION.						TOTALS.				
	Abscess Present.	Sinus Present.	Abscess and Sinus Present.	Neither Abscess nor Sinus Present.		Deformity on Dismissal.	Sinus Developed during Treatment.	Sinus Healed during Treatment.	Discharged or Fit.	Discharged Unfit.	Deaths.	Deformity on Dismissal.	Sinus Developed during Treatment.	Sinus Healed during Treatment.	Discharged or Fit.	Discharged Unfit.	Deaths.	Discharged for other Reasons.	Deaths.	Total.		
—15	—	2	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	2		
—20	1	2	—	1	1	—	—	1	1	—	—	—	—	—	1	2	—	—	—	4		
—25	—	2	—	—	1	—	—	1	1	—	—	—	1	—	—	—	—	—	—	2		
—30	—	4	—	1	3	2	1	2	2	—	1	—	—	—	1	1	1	—	1	5		
—35	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1	—	1		
—40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—50	—	2	—	—	1	—	—	—	—	—	1	—	1	1	2	—	—	—	—	2		
50+	—	1	1	—	2	—	—	—	—	—	1	—	2	—	2	—	—	—	—	2		
Total,	2	13	1	2	8	2	1	6	6	1	—	3	—	4	6	3	1	1	1	18		

TABLE No. 4.

HIP JOINT.

Age Groups.	CONDITION ON ADMISSION.				Deformity on Admission.		TREATMENT AND RESULTS.								TOTALS.			
	Abscess Present.	Sinus Present.	Abscess and Sinus Present.	Neither Abscess nor Sinus Present.	Deformity on Admission.	Sinus Developed during Treatment.	Sinus Healed during Treatment.	Discharged Ambulant or Fit.	Discharged Unfit.	Deaths.	TREATMENT INCLUDED OPERATION.						Deaths.	Total.
											Deformity on Dismissal.	Sinus Developed during Treatment.	Sinus Healed during Treatment.	Discharged Ambulant or Fit.	Discharged Unfit.	Deaths.		
-15	4	1	2	19	20	3	3	7	17	—	1	—	—	1	1	—	—	26
-20	—	2	1	5	7	—	2	2	4	1	1	—	—	1	—	—	1	8
-25	—	1	—	2	3	1	—	—	1	—	2	—	1	1	1	1	1	3
-30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
-35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
-40	—	1	2	—	3	2	—	—	—	2	1	—	—	—	1	—	2	3
-45	1	—	—	—	1	1	—	—	—	1	—	—	—	—	—	—	1	1
-50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50+	—	—	—	1	1	1	—	—	1	—	—	—	—	—	—	—	—	1
Total,	5	5	5	27	35	16	3	9	23	4	5	—	1	3	2	1	5	42

TABLE No. 5.

JOINTS other than Hip.

Age Groups.	CONDITION ON ADMISSION.				TREATMENT AND RESULTS.										TOTALS.					
	Abscess Present.	Sinus Present.	Abscess and Sinus Present.	Neither Abscess nor Sinus present.	Deformity on Admission.	TREATMENT WHOLLY CONSERVATIVE.					TREATMENT INCLUDED OPERATION.					Discharged Fit.	Discharged Unfit.	Discharged for other Reasons.	Deaths.	Total.
						Deformity on Dismissal.	Sinus Developed during Treatment.	Sinus Healed during Treatment.	Discharged Ambulant or Fit.	Discharged Unfit.	Deaths.	Deformity on Dismissal.	Sinus Developed during Treatment.	Sinus Healed during Treatment.	Discharged Ambulant or Fit.						Discharged Unfit.	Deaths.
—15	2	3	1	2	7	3	—	2	2	3	—	2	—	—	3	5	—	3	—	2
—20	3	1	2	7	6	3	—	1	8	1	1	—	—	—	3	10	1	1	1	13
—25	—	—	2	1	—	—	—	—	1	—	—	—	—	—	—	—	2	1	2	3
—30	1	2	—	3	2	—	—	1	2	2	—	1	—	—	2	4	—	2	—	6
—35	1	1	—	—	2	2	—	—	1	1	—	—	—	—	—	1	—	1	—	2
—40	—	—	—	1	1	1	—	—	1	1	—	—	—	—	—	1	—	—	—	1
—45	—	1	—	—	1	1	—	1	1	—	—	—	—	—	—	—	—	1	—	1
—50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50 +	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total.	7	8	5	14	19	10	—	5	16	7	1	3	—	—	8	21	1	9	3	34

TABLE No. 7.

MULTIPLE LESIONS.

Age Groups.	SITE OF PRINCIPAL LESION.					CONDITION ON ADMISSION.					TREATMENT.				CONDITION ON DISMISSAL.			DISMISSED.					COMPLICATIONS.								
	Glands.	Spine.	Other Bones.	Hip Joints.	Other Joints.	Abdomen.	Total.	Sinus.	Abscess.	Sinus and Abscess.	Ulceration.	No Sinus, Abscess or Ulcer.	Total.	Operation.	Aspiration and Injection.	Appliances.	Other.	Total.	Healed, including Arrested.	Improved.	Not Improved.	Total.	Fit.	Unfit.	At Own or Parents' request.	For other Reasons.	Died.	Total.	Tubercular.	Other.	
— 2	—	2	1	—	—	—	3	—	—	2	—	1	3	—	—	1	2	3	3	2	1	—	3	3	—	—	—	—	3	1	1
— 15	—	—	1	1	—	—	2	—	—	—	—	2	2	—	—	1	1	2	2	—	1	1	2	1	1	—	—	—	2	1	1
— 20	2	2	2	—	3	—	9	—	1	4	1	3	9	—	1	2	6	9	9	1	3	5	9	1	1	2	—	2	9	2	2
— 25	—	2	—	1	—	—	3	—	2	1	—	—	3	—	2	—	1	3	3	—	—	3	3	—	—	3	—	—	3	1	—
— 35	—	1	1	1	—	—	3	1	1	—	—	—	2	1	—	—	1	2	2	—	1	1	2	1	—	—	—	1	2	—	2
— 45	—	1	—	—	—	—	1	—	1	—	—	—	1	—	1	—	—	1	1	—	—	1	1	—	—	1	—	—	1	1	—
45 +	—	—	1	—	—	1	2	1	—	—	—	1	2	—	—	—	2	2	2	—	2	—	2	—	—	—	—	2	2	—	1
Total.	2	7	6	—	6	1	22	2	5	7	1	7	22	1	4	4	13	22	3	6	13	22	9	2	6	—	—	5	22	7	7

TABLE No. 8.

GENITO-URINARY and MISCELLANEOUS.

Age Groups.	LOCALISATION OF DISEASE.			Total.	TREATMENT.			Total.	CONDITION ON DISMISSAL.			Total.	DISMISSED.					Total.	COMPLICATIONS.	
	Genito-Urinary.	Skin.	Ear.		Operation.	Tuberculin.	General.		Arrested.	Improved.	Not Improved.		Fit.	Unfit.	At Own or Parents' request.	For other Reasons.	Died.		Tubercular.	Other.
—15	1	—	—	1	1	—	—	1	—	1	—	—	—	—	1	1	—			
—20	1	—	—	1	—	1	—	1	—	1	—	—	—	—	1	1	—			
—25	2	—	—	2	2	—	—	2	1	1	—	2	1	—	—	2	—			
—35	15	—	—	15	11	1	3	15	—	13	2	15	7	1	5	15	4			
—45	3	1	—	4	1	1	2	4	—	4	—	4	2	—	1	4	—			
45+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
Total.	22	1	—	23	15	2	6	23	1	18	4	23	10	1	7	1	4			

BELLEFIELD SANATORIUM.

One hundred and sixty-one patients were discharged from this Sanatorium during 1931, after periods of treatment of varying duration. This number corresponds with that for the previous year. All accommodation has been utilized to the limits of possibility, but during the year there was evidence of diminution in the number of cases thought to be suitable for treatment at this Sanatorium. As a result this period of treatment was considerably extended in the hope that more lasting benefit might accrue.

The required tables are submitted as formerly. Of the fifty cases, classified as being "Early," the majority made satisfactory progress. It is hoped that in many of these ultimate arrest will be established. More than 50 per cent. returned home of their own accord or at the request of parents, a matter for regret.

The intermediate type, one hundred and two in number, continue to show very marked preponderance in numbers. They embraced essentially chronic cases whose general condition and degree of resistance showed evidence of having broken down prior to admission. Improvement was recorded in all of this group with the exception of fifteen. Too great a proportion of this group find difficulty in continuing treatment over a requisite period, stress of family circumstance undoubtedly necessitates early return home in many cases. Five per cent. approximately of the total discharged showed the causative organism to be still present in sputum.

Five deaths took place in nine cases classified as advanced. Artificial pneumothorax was induced in two of these as a last resort, but failed to prove of benefit, though for a time amelioration of symptoms, did take place. The number of children treated was maintained at twenty-four throughout the year; great improvement was shown by the majority.

Treatment in the main has been along general lines with the addition of the induction of artificial pneumothorax in cases thought suitable for such treatment. The induction of artificial pneumothorax was attempted in twenty-three cases, of which six proved unsuccessful. An additional three proved unsatisfactory and were discontinued. Two advanced cases referred to previously died during course of treatment. A total of twelve remained under treatment at the close of the year. A total of 332 refills were given. Undoubted benefit has resulted in those cases where treatment has been satisfactorily maintained.

The poultry farm and garden continued to meet the requirements of the sanatorium in a satisfactory manner. The staff enjoyed a high standard of good health throughout the year.

A. YOUNG,
Physician-Superintendent.

**BELLEFIELD SANATORIUM.—TUBERCULOSIS.—TABLE SHOWING
STAGE OF DISEASE, AGE, RESULT OF TREATMENT, &C., OF PATIENTS
DISMISSED DURING YEAR 1931.**

Age Group.	Result of Treatment.					Work or School.	Reasons for Dismissal		Result of Sputum Examination.					Complica- tions.					
	Arrested.	Much Improved.	Improved.	Not Improved.	Died.	Less than 4 Weeks.	Fit.	Unfit.	Own accord.	Other reasons.	Transferred.	Admitted +. Discharged +.	Admitted +. Discharged -.	Admitted -. Discharged -.	Admitted -. Discharged +.	No Spit.	Tubercular.	Other.	Totals.
Early Cases—																			
— 5,	—	1	—	—	—	—	1	—	—	1	—	—	—	—	—	1	1	—	1
—10,	—	6	1	—	—	—	7	—	3	4	—	—	—	—	—	7	—	—	7
—15,	—	9	5	—	—	—	14	—	11	3	—	1	—	2	—	11	—	—	14
—20,	—	12	9	—	—	—	10	1	6	5	—	1	—	3	—	7	—	—	11
—25,	—	7	6	—	—	—	13	—	5	8	—	—	1	3	—	9	1	—	13
—35,	—	1	2	—	—	—	3	—	—	3	—	—	1	—	—	2	—	—	3
+35,	—	—	1	—	—	—	1	—	1	—	—	—	—	1	—	—	—	—	1
Totals,	—	26	24	—	—	—	49	1	26	24	—	2	2	9	—	37	2	—	50
Intermediate Cases—																			
—15,	—	1	4	3	—	—	3	5	6	1	1	2	2	4	—	—	—	—	8
—20,	—	2	13	4	—	—	11	8	5	12	2	1	8	4	—	6	—	—	19
—25,	—	4	17	2	—	—	16	7	13	8	2	5	5	9	—	4	—	—	23
—35,	—	4	18	6	—	—	22	6	15	12	1	6	2	12	—	8	—	—	28
—45,	—	1	19	—	—	—	18	2	16	4	—	7	2	7	—	4	—	—	20
+45,	—	1	3	—	—	—	4	—	2	2	—	1	1	2	—	—	—	—	4
Totals,	—	13	74	15	—	—	74	28	57	39	6	22	30	38	—	22	—	—	102
Advanced Cases—																			
—15,	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—20,	—	—	—	1	1	—	—	1	1	—	—	—	1	—	—	—	—	—	2
—25,	—	—	—	2	3	—	—	2	1	—	1	2	—	—	—	—	—	—	5
—45,	—	—	—	1	1	—	—	1	1	—	—	1	—	—	—	—	—	—	2
Totals,	—	—	—	4	5	—	—	4	3	—	1	3	1	—	—	—	—	—	9

**BELLEFIELD SANATORIUM.—YEAR 1931.—TABLE SHOWING
CASES DISMISSED, WITH DURATION OF RESIDENCE.**

Class.	Number Dismissed.	Number of Deaths.	Duration of Residence—Days.						
			—30	— 50	—100	—150	—200	—300	+ 300
Early, ...	50	—	—	3	5	13	13	9	7
Intermediate, ...	102	—	3	7	18	17	16	13	28
Advanced, ...	9	5	—	—	—	—	—	2	7
Totals, ...	161	5	3	10	23	30	29	24	42

MEARNSKIRK HOSPITAL.

Mearnskirk Hospital for children was opened on 1st May, 1930, and was equipped by 9th May for the reception of patients. When three pavilions with all the essential services were available for occupation. By May, 1931, the remaining six pavilions and two isolation blocks were in complete operation.

This report deals mainly with the patients discharged during the remaining months of 1930 and the whole of 1931. The period covered was one of gradual development, so the data supplied are not representative, either in numbers or in type, of what the established practice of the hospital will be. Many of the cases were transferred from Robroyston and other hospitals where they had been under treatment for varying periods. Some were suffering from chronic forms of tuberculosis requiring prolonged treatment, while others had been treated to a conclusion and were in a state of convalescence.

The age, sex, and disease distribution of the cases admitted during the two periods is shown in Table I. During the eight months of 1930, 385 cases were admitted, of whom 76 were subsequently dismissed. In 1931 the number admitted was 444, while 275 were discharged. Table 2 gives details concerning the patients who were discharged, and reference may be made to certain features they contain.

Abdominal Tuberculosis.—Patients admitted with a diagnosis of abdominal tuberculosis constitute the largest group to be dealt with. During 1930 there were discharged 48 cases of this type, while in 1931 there were 111. Of the 48 cases dismissed during 1930, the diagnosis of abdominal tuberculosis was not confirmed in three cases (Hodgkin's disease, sarcoma of the kidney and rickets respectively). No evidence of an active tubercular lesion could be obtained in 14 cases though the antecedent history was suspicious. The remaining cases, 31 in number, were definite clinical types of the disease. Of these 7 cases died in hospital, while 24 were discharged well. The average duration of residence in hospital was 107 days.

In the series of 111 cases discharged during 1931, there were two cases of altered diagnosis, one being a case of lymphosarcoma of the jejunum, the other a case of rickets. As in 1930 there was a group of patients numbering 32, who showed no evidence of an active tubercular process, though their history prior to admission suggested such a diagnosis. The remaining 77 cases were clinically definite and were classified as follows:—*Tabes mesenterica* 15; tubercular peritonitis 39; tubercular peritonitis with enteritis 14; tubercular peritonitis with ascites 1; caseating abdominal tuberculosis 6; ileo cæcal tuberculosis 1; generalised tuberculosis 1. There were 12 fatal cases in this group, the main causes of death being gradual deterioration due to the toxæmia, and meningitis. Apart from

irregular dismissals the remaining 56 patients were discharged free from any symptoms. The average duration of residence in hospital was 194 days.

Spinal Tuberculosis.—The 21 cases admitted with a diagnosis of spinal tuberculosis and dismissed, two in 1930, and 19 in 1931, form a small but important group. The diagnosis was substantiated in 17 cases and altered in four cases. Two of the latter were found to be congenital deformities, while the others were due to non-tuberculous abscesses in the vicinity of the spine. In the 17 definite cases the disease was healed and well consolidated in five. There were 8 fatal cases in the group, the cause of death being mediastinal abscesses in 5 cases, amyloid disease in 2, and meningitis in 1 case.

The disease involved the cervical spine in 2 cases. The upper dorsal in 4, the mid-dorsal in 2, the lower dorso-lumbar in 7, the entire dorsal spine in 1, and the lumbar region in 1 case. Deformity was present in 16 cases and was of a massive character in 8 of them. Abscess formation occurred in 12 cases and was accessible to operative interference in 5. The average duration of residence of such cases was 198 days, but no case in the group received complete treatment in this institution.

Tuberculosis of the Hip Joint.—As in the previous group the turnover of cases was small. Of a total of 20 cases the diagnosis of tuberculosis of the hip was not confirmed in 6 cases, the casual factors being hæmophilia 1 case, acute abscess of the groin 1 case, bilateral coxa vara 1 case, traumatic synovitis 2 cases, faulty gait due to partial paralysis 1 case. With regard to the 13 remaining cases, in two the diagnosis was made on clinical grounds only and was not supported by radiographic appearances. The other 11 cases showed definite evidence of bone involvement with in some instances gross deformity due to ankylosis of the joint.

With two exceptions all the patients left hospital in a soundly healed state. Appliances in the form of certalmid splints, crutches and pattens were supplied to 15 cases. The average duration of residence of these cases was 272 days.

Tuberculosis of the Knee Joint.—In this group there were 13 cases, 2 of whom were dismissed in 1930, and 11 in 1931, the diagnosis was altered in 5 of the group, the findings being entirely negative in 2 cases, rickets in 1 case, and infections of the soft tissues in 2 cases. In the 11 definite cases the disease was localised to the synovial membrane in 7 cases, while in 4 there was definite involvement of the joint surfaces. With the exception of 2 cases all left the hospital soundly healed. These cases were all supplied with appliances either in the form of a certalmid splint or a Thomas's walking caliper. The average duration of treatment was 233 days.

Tuberculosis of the Ankle.—There were 16 cases in this category, 1 being dismissed in 1930, and 15 in 1931. There was 1 case of altered diagnosis, the patient suffering from a septic infection due to the presence of a splinter of wood, while another case was transferred to Belvidere Hospital with diphtheria to be readmitted several weeks later. Of the remaining 14 cases 11 were admitted with active tuberculosis of the ankle region. The results of treatment were generally satisfactory. Apart from one patient who was taken home irregularly, a full range of movement was obtained in 9 cases, and in 3 other cases there was arrest of the disease with ankylosis of the joint. Certalmid splints and crutches were supplied to 11 cases. The average duration of residence of all cases was 289 days, of those where the disease was active 329 days.

Tuberculosis of the Glands.—During 1930 there were 10 cases in this group. The diagnosis was confirmed in all but 1 case where the glandular enlargement was due to a septic infection. All cases were dismissed well. The average duration of stay in hospital was 123 days. The cases discharged during 1931 numbered 26. The diagnosis was confirmed in 20 of the cases. Of the 6 cases where the diagnosis was altered there were 3 cases where the casual agent was a pyogenic infection, 1 case of Hodgkin's disease, 1 of debility, and 1 case of multiple tuberculosis of other parts of the body. With regard to the condition on discharge, 19 cases were in good general condition with lesions arrested or healed, 5 cases were dismissed irregularly, treatment being incomplete, 1 case was transferred to Belvidere Hospital with chicken-pox, 1 case died. The average daily residence of the whole group of cases was 163 days.

Orthopædic Cases.—By arrangement with the Education Health Service the hospital surgeon attended Ashley Street Orthopædic Clinic fortnightly. In conjunction with Dr. Bruce orthopædic cases referred to the clinic by the School Medical Officers were examined and treatment prescribed. When institutional treatment was required the cases were admitted to Mearns Kirk Hospital as accommodation became available. Such cases when dismissed from the hospital are referred to the clinic where their progress is watched and further treatment undertaken if necessary.

It is hoped it will be possible to extend this service to include all cases of bone and joint tuberculosis dismissed from the hospital. The need for an effective aftercare scheme is felt by those in close contact with the work, and provision is being made for the operation of a splint repair service at Ashley Street Clinic in addition to the provision already made for physical treatment. Only a small number of patients admitted to the hospital under this scheme were dismissed before the end of 1931.

In 1930 a case of congenital talipes equino-varus which had received previous treatment in Robroyston Hospital was dismissed after 38

pulse or respiration rate being controlling factors. When the more advanced exercises were reached the child was allowed up; and thereafter for 6-8 weeks daily periods of increasingly strenuous exercises were prescribed.

While the general results of this treatment were in the majority of cases beneficial—and in a few definitely outstanding—its effects on the local lesion were disappointing. Thus the gain in weight, in physical development, and in chest expansion was very marked, but complete disappearance of the original lung lesion rarely occurred. Diminution in an area of pulmonary fibrosis or congestion, or in the adventitia of a bronchitic chest were the results most commonly obtained. Usually during the first month in hospital, cough and sputum became negligible factors. The children therefore left hospital in good general condition and with their pulmonary disease lessened, but still present.

Any conclusions as to the value of this routine—or of hospitalisation in this type of patient—must be controlled by the further history in each case. It appears, however, that only in a minority can the results be other than temporary. Surgical interference, such as phrenic avulsion, phrenicectomy, and even thoracoplasty had been advocated for these patients, but the lesions found in this series did not necessitate such drastic measures. The survey seems to indicate, therefore, that the most suitable measures of treatment at present available are along the lines described; but that more prolonged hospitalisation will probably be required if the general improvement is to be maintained on the return to home conditions.

TREATMENT.

Operations.—During the period covered by the report there were 202 operations requiring general anaesthesia. These were mainly concerned with the excision of tuberculous lesions or with the correction of deformities in bones and joints. Of the total 58 were carried out in 1930, and 144 in 1931.

Plaster of Paris Work.—The following table shows the number and type of the plaster appliances made during the period:—

Spinal Jackets,	...	...	...	...	...	39
Spinal Fillets,	...	...	...	...	...	9
Hip Spicas,	...	...	...	...	...	151
Elbow, Ankle and Leg Splints,	...	...	...	...	...	63
Bivalve Splints,	...	...	...	...	...	18
Ventral Shells,	...	...	...	...	...	30
Plaster Casts,	...	...	...	...	...	109
Total,	...	...	...	...	...	<u>419</u>

Of these 419 appliances, 88 were made in 1930 and 331 in 1931.

Splint Work.—Most of the splints and special fittings required for treatment of bone and joint were made in the hospital under medical supervision. Many of the appliances are of original design and much time has been expended on experimental work. The type of weight and pulley extension apparatus made at Mearnskirk has a neat appearance, is easily stored, is economical in construction, and has proved to be most satisfactory in use. An adjustable carriage, on which both spinal and hip cases can be immobilised, has been evolved during the past two years. With this appliance a more exact control over the treatment of these patients has been secured and the nursing difficulties simplified. The carriage possesses advantages not available in any of the appliances in common use, its main asset being its adjustability to suit patients of different size suffering from different forms of disease.

In addition to the splints shown in the following table many of the fittings in the plaster room were constructed in the splint department.

Certalmid Splints, ...	...	...	...	94
Wooden Splints, ...	...	...	...	257
Metal Splints, ...	...	...	...	18
Extension Pulleys, ...	...	...	...	65
Pattens Fitted, ...	...	...	...	23
Crutches Padded, ...	...	...	...	29
Rexine Restrainers, ...	...	...	...	30
Pugh's Frames, ...	...	...	...	12
Boots—sole raised, ...	...	...	...	13
Hyper Extension Bars, ...	...	...	...	25
Spinal Carriages, ...	...	...	...	15
Electric Cages, ...	...	...	...	3
Repairs (various),...	...	...	...	83
Total, ...				<u>667</u>

DENTAL TREATMENT.

A visiting dentist, Miss Gentles, L.D.S., has been appointed and visits the hospital weekly. Besides an extensive survey of the patients' teeth, 209 extractions have been done, 115 with local, and 94 with general anaesthetics. In addition 39 extractions have been carried out by members of the staff: all under local anaesthesia.

Radiology.—During 1931 the number of patients X-rayed was 1,029, and 2,025 skiagrams were taken of them. The visiting radiologist, Dr. F. L. Henderson, conducted 51 sessions, the electrician on the staff undertaking 10 sessions.

LABORATORY.

The laboratory has been gradually organised and is now able to undertake the routine work of the hospital. The number of specimens examined was 593, as detailed below:—

Throat swabs for <i>B. diphtheriæ</i>,	...	...	233
Pus for <i>B. tuberculosis</i> , etc.,	...	...	88
Sputum for tuberculosis,...	...	...	180
Urine for organisms,	...	...	60
Fæces for typhoid group,	...	...	9
Miscellaneous,	...	...	23
Total,	...	...	<u>593</u>

EDUCATION.

During the year 1931 an effort was made to afford education facilities for the children under treatment. Two teachers with special qualifications were appointed to the staff by the Education Authority at the beginning of the year, and an additional one in September. The average number of patients receiving instruction during the first half of the year was 37, and during the second, 93.

J. WILSON,
Physician Superintendent.

TABLE I.

ADMISSIONS DURING 1930 (MAY TO DECEMBER) AND 1931 IN RELATION TO AGE, SEX AND DISEASE DISTRIBUTION.

AGE.	Abdomen.		Spine.		Hip.		Knee.		Feet, Ankle.		Elbow.		Wrist, Hands.		Fingers, Toes.		Mastoid.		Rib.		Thigh.		Arm.		Glands.		Lung.		Multiple.		Orthopedic.		Others.		Total.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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— 5 years,	{ 1930		24	14	38	6	1	7	1	5	6	7	5	12	3	6	9	2	2	4	1	—	1	1	5	6	—	—	—	—	—	—	—	—	—	2	2	58	43	101																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	{ 1931		19	20	39	17	15	32	5	8	13	10	5	15	6	3	9	1	—	1	—	1	1	3	3	6	—	1	1	—	—	—	—	—	—	7	7	14	4	—	1	2	4	6	81	75	159																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
— 10 years,	{ 1930		27	25	52	16	10	26	17	15	32	1	17	18	1	3	7	4	—	4	—	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	4	4	8	—	—	5	5	10	83	85	168																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	{ 1931		31	26	57	14	9	23	15	12	27	7	5	12	3	1	4	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	7	14	11	24	35	—	—	1	5	6	4	5	9	95	94	189																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
— 15 years,	{ 1930		16	20	36	12	10	22	9	6	15	5	2	7	5	4	9	2	—	2	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	6	4	10	—	—	—	2	2	4	—	—	4	1	5	62	49	111																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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PART III

GENERAL HOSPITALS AND OUTDOOR MEDICAL SERVICES.

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GENERAL HOSPITALS AND OUTDOOR MEDICAL SERVICES.

In the Annual Report of the Medical Officer of Health for 1930, there is given in Part I. the full details of the schemes for the re-organisation of the Health Department, consequent upon the Local Government Act. There is also given in Part III. a short statement on the services for the treatment of the sick poor, including hospital

treatment and domiciliary treatment, from 16th May, 1930, the date upon which the transfer of the general hospitals and domiciliary medical service from the Parish Council to the Health Department of the Corporation took place, to the end of the year. There is now, in addition to the above period, a complete year upon which to report. Before entering into the details of the year's work, however, it may be desirable to give a short summary of the conditions up to 1930, in order to bring under focus all the different component parts of the health service and their position under recent legislation. Previous to the passing of the Local Government Act, there were three public bodies each independently providing medical treatment for certain sections of the population.

The Corporation, through the Public Health Department, provided treatment for infectious diseases, including tuberculosis and venereal disease. Although the initial purpose of notification was to ascertain the extent to which infectious disease existed, and to enable isolation of cases to be carried out in order to prevent the spread of infection, there is now a considerable bias towards regarding the actual treatment of the ailments themselves and the prevention of complications as being of primary importance. This is consequent upon the virtual extinction of certain diseases, such as typhus and typhoid, and upon changes in views on the epidemiology of other diseases. Since the advent of notification of pneumonia, and as a result of the fuller realisation that under urban conditions respiratory infections are the most dangerous to life, especially in young persons, more and more of the infectious disease accommodation has been set aside for the treatment of these patients. There is no particular reason why pneumonia or the respiratory sequelæ of measles should be treated in an infectious diseases hospital. Therefore, there has been a certain amount of overlapping between the infectious diseases service and that formerly provided by the Parish Councils. The Public Health Department also provided centres for giving advice regarding infants and children under school age, and to pregnant women. Along with this advice, a certain amount of treatment of minor diseases was given. Blind persons, so far as the medical aspect of their blindness in relation to certification was concerned, were also dealt with by the Public Health Department.

The Education Authority had the responsibility of examining and ensuring that such medical treatment as was necessary was carried out in respect of school children. The Education Authority was as a consequence compelled itself to provide that treatment to necessitous persons, thereby overlapping to a certain extent upon the activities of the Public Health Department, the Voluntary General Hospitals, and the Parish Council.

Treatment of the sick poor, that is, the provision of medical relief to destitute persons, supervision of mental defectives, and administration of the Lunacy Acts, were the functions of the Parish Councils and District Boards of Control. These duties were carried out both in institutions provided for the purpose and by a domiciliary medical service. The Parish Councils in their hospitals provided treatment

for a certain number of non-pauper patients, and from these persons the cost of maintenance was recovered. But the hospitals of the Parish Councils were then, and they still are, essentially places for the reception of the poor, and it must be clearly understood that at present no accommodation in these institutions is available for the general public until the statutory demands in the way of treatment of the poor have been met.

With the passing of the Local Government Act, the administration of the medical services of the Education Authority, the Parish Councils and District Boards of Control passed into the hands of the Corporation, and was delegated with certain minor exceptions to the Public Health Committee. The statutory authorities, under which these services are provided, remain as before; for example, infectious disease under the Public Health Acts and Infectious Disease Notification Acts; tuberculosis and venereal diseases under the Tuberculosis and Venereal Diseases Regulations, also authorised under the Public Health Acts; and child welfare and maternal care under the Notification of Births Acts and the Midwives Acts. The Education Medical Service has its authority in the Education Acts, and the treatment of the destitute is prescribed under the Poor Law Acts. Until such time as the local authority puts forward a scheme, under Section 27 of the Local Government Act, for the re-organisation of the hospital facilities at its disposal, with a view to the provision of treatment of the general sick in the area, which would include sick persons who are not destitute, the above Acts remain as being the only legislation under which the local authority has powers.

The total number of beds for the treatment of sick persons suffering from general diseases taken over from the Parish Councils to the Corporation may be set down as follows:—

Three General Hospitals,	2,448 beds.
Hospital beds in Combined Poorhouse and	
General Hospital,	622 „
Hospital Beds in Poorhouse,	350 „
One Convalescent Home,	44 „

The administration of the three general hospitals and the convalescent home was allocated to the Public Health Department. The poorhouses are controlled by the Public Assistance Department, but the hospital beds in the combined institution mentioned above are administered on behalf of the Public Health Department while that Department is also responsible for the medical arrangements in the poorhouses and other institutions.

Corporation General Hospitals.—The three general hospitals which have been mentioned are Stobhill, the Eastern District and the Western District Hospitals.

Stobhill Hospital was originally designed and built as an institution for the aged and infirm. Much foresight with regard to future development was displayed in the lay-out and construction of the wards, so

that as the demands for a higher degree of skilled medical attention to poor persons gradually increased, the institution proved so adaptable that at present the accommodation is comparable with that in any first class general hospital. During the War, Stobhill was occupied by the military authorities. Within recent years the appointment of visiting physicians and surgeons from the staffs of the voluntary teaching hospitals further raised its status, and in 1928 there was added a large and fully equipped X-ray and medical-electrical department and a new operating theatre wing. The accommodation in Stobhill is as follows:—

	Beds.	Cots.
General Medical,	576	176
General Surgical,	187	10
Gynæcological,	56	4
Tuberculosis,	38	1
Venereal Disease,	37	1
Maternity,	70	56
Mental Observation,	273	5
Ear, Nose and Throat, Eye and Skin Diseases,	131	68
Children's Hospital,	—	168
Total,	<u>1,378</u>	<u>489</u>

The whole-time staff consists of an assistant medical superintendent, pathologist, anæsthetist, senior resident medical officer and four medical and surgical registrars. Besides these there are eleven junior resident medical officers. The visiting staff consists of one visiting surgeon and four visiting physicians, an aural surgeon, ophthalmologist, dermatologist, obstetrician, radiologist, and dental surgeon. There are three operating theatres of modern construction and equipment, one especially adapted for eye, ear, nose and throat work, besides a urological theatre equipped with X-ray plant. The X-ray department is capable of undertaking any kind of X-ray examination and treatment, including deep therapy. In 1930 a supply of radium was purchased—115 milligrams in all—so that radium therapy is readily available for suitable cases. There is also a well equipped laboratory with animal house.

The Eastern and Western District Hospitals were completed somewhere about the same time as Stobhill, and were built for the purpose of affording indoor medical relief for the sick poor of the parish of Glasgow. They are both situated in populous districts of the city and are, therefore, readily accessible for emergency cases. Both are of modern construction and have up-to-date operating theatres and equipment. The Eastern District Hospital has a well equipped laboratory. All cases requiring X-ray examination, however, are

transferred from either of these hospitals to Stobhill. The accommodation in the Eastern and Western District Hospitals is as follows :—

<i>Eastern District Hospital.</i> —					Beds.	Cots.
Medical,	...	...	...	...	162	15
Surgical,	...	...	...	...	52	—
Gynæcological,	...	...	...	...	17	—
Maternity,	...	...	...	...	12	6
Mental Observation,	...	...	...	...	50	—
Total,					<u>293</u>	<u>21</u>

Plus 15 cots transferable as required.

<i>Western District Hospital.</i> —					Beds.	Cots.
Medical,	...	...	...	...	140	16
Surgical,	...	...	...	...	50	6
Gynæcological,	...	...	...	...	16	—
Maternity,	...	...	...	...	23	16
Total,					<u>229</u>	<u>38</u>

In each of these hospitals there are a senior resident medical officer and two juniors. The visiting staffs consist of a surgeon, physician, obstetrician and dental surgeon. A physician who is a specialist in mental diseases visits the Eastern District Hospital and has charge of the mental observation wards.

The Southern General Hospital formerly belonged to the Govan Parish Council. Several new blocks have been added since it was first occupied. The hospital part is within the same grounds as the poor-house, but in separate buildings. The accommodation for the sick is as follows :—

	Beds.	Cots.
Medical,	350	47
Surgical,	70	5
Gynæcological,	15	—
Tuberculosis,	37	1
Maternity,	6	6
Mental Observation,	20	—
Skin Diseases,	53	12
Total,	<u>551</u>	<u>71</u>

The institution has complete operating theatre and equipment, and also an X-ray outfit which, however, is in need of renewal. There is a small clinical laboratory. The medical staff consists of the medical superintendent, a senior resident medical officer and five assistants. There is a visiting physician, surgeon and dentist.

All of these hospitals have full-time masseuses on the staff.

Medical Staffs of Hospitals.—The Medical Superintendent of Stobhill is also Deputy Medical Officer for Hospitals and Outdoor Medical Services under the Poor Law. He is purely an administrative officer and takes charge of the Eastern and Western District Hospitals, as well as Stobhill. In addition he is adviser on medical matters to the Public Assistance Department and arranges the medical staff for the sick beds in the poorhouse. The registrars in Stobhill Hospital are resident medical officers, who have been promoted to these positions after having occupied junior resident posts. The junior assistant resident medical officers are medical graduates chosen on the same basis as the house physicians and surgeons in a voluntary or teaching hospital.

In the Southern General Hospital, the medical superintendent is also governor of the poorhouse.

The visiting staff are physicians or surgeons, or assistant physicians or surgeons to one or other of the voluntary hospitals, or of equivalent status. Their duties are the visiting of hospitals daily and directing the treatment of patients. It will be readily seen that since there are in Stobhill some 300 medical beds allocated to each physician, their principal duties will be in seeing cases referred to them by the registrars and resident medical officers. It might be more appropriate to call them visiting consultants.

The laboratory at Stobhill is under the direction of a full-time pathologist, whose appointment was made after consultation with the University authorities. He is an honorary lecturer in Pathology to the University. The following tables show the medical staff of the various institutions in detail:—

Stobhill Hospital.—

Medical Superintendent (who is also Deputy Medical Officer of Health and Medical Superintendent of the Eastern and Western District Hospitals).

One Assistant Medical Superintendent.

One Senior Resident Medical Officer.

Four Registrars, Medical, Surgical, Obstetrical and Mental.

Eleven Junior Resident Medical Officers.

One Anæsthetist.

One Pathologist.

One Assistant Pathologist.

Visiting Staff.—

Four Physicians.

One Surgeon.

Specialists for Obstetrics; Ear, Nose and Throat; Eye; Skin and Dentistry.

Eastern District Hospital.—

One Senior Resident Medical Officer.

Two Junior Resident Medical Officers.

Visiting Staff.—

Two Physicians.

One Surgeon.

One Dental Surgeon.

One Obstetrician.

Western District Hospital.—

One Senior Resident Medical Officer.
Two Junior Resident Medical Officers.

Visiting Staff.—

One Physician.
One Surgeon.
One Obstetrician.
One Dental Surgeon.

The visiting physicians and surgeons have appointments which are renewable annually. The junior resident medical staff are expected to stay for one or two years.

Southern General Hospital.—

One Medical Superintendent.
One Assistant Medical Superintendent.
Five Resident Medical Officers.

Visiting Staff.—

One Physician.
One Surgeon.
One Dental Surgeon.

Teaching of Students.—The Corporation hospitals should provide an abundance of opportunity for the teaching of medical students, and many of the visiting staff avail themselves of the opportunity so afforded. With regard to mental diseases, there are regular clinics held at Stobhill and Eastern District Hospitals. At Eastern District Hospital regular classes in clinical medicine are conducted. The great obstacle to the full utilisation of these institutions for teaching purposes is their distance from the University and the Teaching Schools. This applies particularly to Stobhill.

Training of Nurses.—All the Corporation General Hospitals are recognised training schools for nurses. Various problems in connection with nursing in the Corporation institutions are being considered and an attempt is being made to devise a system whereby a certain amount of reciprocity between the different hospitals can be put into operation, so that an opportunity will be afforded for nurses to acquire experience in all branches, including fevers and tuberculosis. The whole question bristles with difficulties. One of the principal obstacles to the framing of a comprehensive scheme of this kind is the relative deficiency of surgical as compared with medical nursing.

It is highly desirable that the whole question of training of nurses should be brought under careful review. The present system of training nurses may be regarded as unduly compartmented, while the training course has also become unduly prolonged in the case of those who wish to have a real training in "general" nursing. It takes five or six years, in some instances, to acquire the certificates in all the subjects in which nurses may be expected to be generally proficient.

Various plans have been suggested as a remedy and it is hoped that there will be evolved some system of reciprocity between the different types of institutions so that it will be possible for a nurse within a reasonable time to have an opportunity of gaining experience in all branches of the profession. The question of having two or more professional grades in nursing is one which commands attention. There must be some differentiation made between training of an individual whose vocation is the actual nursing of the sick and one whose talents are supervisory and administrative. A satisfactory solution of these problems is, however, still very far off.

Research.—Facilities for scientific research exist in all the general hospitals, and it is hoped that in the future full advantage will be taken of the material available.

Refereeing of Cases.—The staffs and facilities of the hospitals are at the disposal of the outdoor medical officers for the purpose of refereeing cases. If a disagreement arises between the outdoor medical officer and the patient's panel practitioner, for example, regarding fitness for work, and hence suitability for inclusion in the roll of the Sick Poor, the patient can be sent to hospital for special examination and assessment. In this way a considerable amount of awkward responsibility is taken from the shoulders of the district medical officers. The amount of this kind of work which is done has in the past year been approximately 20 to 30 cases per week. The patients are seen at Stobhill Hospital by a small board consisting of the appropriate registrar and another medical officer. If necessary, they are referred for special examination by one or other of the visiting specialists. It also happens that the facilities of the hospitals are to some extent used by medical referees under the National Health Insurance Scheme. The number of such examinations is as yet small, but there is a possibility that it will increase. It must be remembered that the National Health referees have no facilities directly at their disposal for special examination, *e.g.*, X-ray, bio-chemical, or bacteriological, and at present are largely dependent upon the General and Special Hospitals supplying them voluntarily with the necessary reports.

Admission of Cases to Corporation General Hospitals.—The Corporation General Hospitals function as places for the reception of the statutory poor. The normal method of admission, therefore, is by application for relief to the Director of Public Assistance and certification as to necessity and suitability for treatment by the District Medical Officer. Persons, other than the legal poor, may also be admitted, after application and certification as above, but steps are taken to recover from such persons the cost of maintenance while in hospital. Sometimes the certificate of a practitioner, other than a district medical officer, is accepted, usually in cases of urgency, and during the past year there has been an increase in the amount of such certification. Occasional cases are admitted directly without formality on the plea of urgency.

It is the duty of the Corporation to provide medical attendance, etc., to poor persons *in such manner and to such extent as may seem equitable and expedient*, and the relief so required must be available immediately. Therefore, accommodation in the hospitals must always be reserved for poor persons certified to be in need of treatment. The custom in the past has been to admit as many cases to institutions as possible rather than give outdoor relief, with the result that considerable numbers of patients were sent to hospital suffering from very minor ailments. Again, housing conditions and the present economic circumstances govern admission to hospital. The selection of cases for hospital is made by the district medical officer, and in order to conserve hospital accommodation as much as possible, it is becoming clear that the district medical officer will require some assistance in domiciliary treatment in the form of nursing facilities (see Report on Outdoor Medical Services, page 377).

Cases from authorities outside the city are accepted for treatment, provided accommodation is available, and a considerable number of such cases are received from certain of the neighbouring counties and burghs.

Tuberculosis Cases.—Special wards are maintained in Stobhill and the Southern General Hospital for the treatment of cases of tuberculosis. Patients of the “in and out” type are dealt with in special wards in the poorhouse at Barnhill, which is a continuation of the arrangement existing prior to the transfer. A certain number of tuberculous cases are also to be found in the general wards of the hospitals, a situation which cannot altogether be avoided.

Venereal Disease.—The treatment of venereal disease in the general hospitals is not yet fully linked up with the venereal diseases scheme. There are male and female wards in Stobhill for the treatment of such cases, and neuro-syphilitic affections are dealt with chiefly in the general medical or in the mental observation wards. A scheme of unification of the supervision of venereal disease is highly desirable, and is under consideration.

Hospital Statistics.—For the period since the transfer of the hospitals to the Corporation until the end of 1931, the hospitals’ statistics were prepared from the lists of cases dismissed, which were sent daily to the central office from each hospital. These dismissal sheets gave the patient’s name, age, address, diagnosis on admission, diagnosis as confirmed, and the disposal of the case. The details for each individual were coded and punched on a blank Hollerith card, and the data tabulated mechanically.

The question of a suitable classification of diseases gave rise to considerable difficulty, and, after consideration, it was decided to base the hospitals’ classification upon the International List of Causes of Death. Realising, however, that this list is too extensive for practical purposes, and that whereas the contracted lists may give a good picture of mortality, this is not exactly what is required in a hospital

report, an abbreviated list of 85 items was chosen. In this list special headings were given to diseases which for any reason could be considered as having administrative importance. The list was so arranged that it could be readily compared with the abridged list of causes of death published annually in the Report of the Medical Officer of Health. It had also to be chosen so that the reports required by the Department of Health could be prepared from it. After the experience of the first seven months, certain modifications were made, and the code numbers of the diseases were so arranged as to leave suitable blanks for the additional inclusion of any special disease in its appropriate place on the list.

Causes of morbidity are not strictly speaking always the direct cause of death, and such conditions as hypertrophy of tonsils and adenoids, which are of considerable administrative importance, ought to be shown in relief in any table dealing with hospital statistics. Certain other diseases were specifically given separate headings because of the way in which they reflect the work of the hospital; for example, such conditions as chronic bronchitis, varicose veins, senility, malignant disease, insanity, when taken together with the age incidence of patients, form a good measure of the extent to which the hospital is used for housing sub-acute or chronic sick. On the other hand, for example, accidents, appendicitis, gastric and duodenal ulcer, when considered along with the ages of the patients and the operations performed, reflect the use which is being made of the hospital for acute cases.

A very short list of operations was also drawn up with a view to indicating the amount and nature of the surgical work carried out.

With regard to maternity work, it was found to be extremely difficult to compile useful statistics from dismissal reports, and a special table was drawn up to be completed by the registrars and residents in charge of the maternity wards.

There has, however, not yet been devised a classification which would enable cases to be administratively differentiated into acute and chronic sick. The Corporation hospitals must take charge of those individuals who are considered beyond the scope of the voluntary hospitals, and consequently are obliged to admit large numbers of persons who are not in any particular need of continuous skilled nursing, and who only require intermittent medical attention. Persons suffering from chronic disease, especially with paralysis or some crippling deformity, may only require assistance in dressing, feeding, etc. Feeble aged persons may only be in need of supervision, which could be supplied by other than highly trained nurses. Healthy children have frequently to be admitted along with relatives, or for some other reason, such as desertion, and these, with the exception of very young babies, are in no need of medical and nursing care. There are also special conditions, such as maternity, ear, nose and throat, eye, and skin diseases, which require to have accommodation reserved for them. Certain types of patient, the acute sick, require constant attention and skilled nursing, whereas at the other end of the scale there are patients who merely require a varying amount of unskilled supervision.

To classify all patients into water-tight compartments, according to the hospital provision which would be necessary, is administratively impossible. A hospital may be reserved mainly for the chronic sick, but it would be impossible to prevent occasional cases of the acute sick from being admitted. Also, the chronic sick become acutely ill from time to time. Similarly no classification could include all permanently bedridden cases. In the Annual Report of the London County Council for 1930, the following classification is given :—

- (1) Acute sick.
- (2) Chronic sick.
- (3) Permanently bedridden, requiring continuous attention.
- (4) Permanently bedridden, not requiring continuous attention.
- (5) Feeble aged persons.
- (6) Children.

A somewhat similar classification was drawn up for the purposes of consideration of the destinies of the various transferred hospitals in Glasgow. This was as follows :—

- (1) Acute cases.
- (2) Cases requiring active medical or surgical treatment and skilled nursing who are likely to recover sufficiently to return to citizenship.
- (3) Chronic cases requiring active medical or surgical treatment and skilled nursing.
- (4) Chronic cases requiring nursing only. (Not requiring intimate medical attention.)
- (5) Chronic cases not requiring medical treatment or skilled nursing.
- (6) Healthy children.

As stated before, these groups must not be regarded as water-tight, but nevertheless they should be given consideration when determining to what use an institution is to be put, and should also be taken into consideration in allocating cases to different parts of a hospital.

This problem is a difficult one and the best administrative line to take is not yet clearly defined. As a general principle, the hospital at Stobhill should admit those cases requiring elaborate investigation, which that hospital is peculiarly fitted to carry out. The chronic sick, should, to a certain extent, be admitted to all the general hospitals for treatment and classification and in order to ascertain whether they are, in fact, incurable or bedridden, and if so, whether they should be segregated in one institution. Another problem is created by the presence in the general hospitals of feeble and aged persons, who require other and simpler provision. The housing of healthy children, temporarily separated from their parents, or prior to boarding out, is at present a function of Stobhill hospital. While their accommodation in the precincts of a large general hospital possesses advantages and simplifies medical administration, they occupy beds which could be put to other purposes.

As regards the chronic sick and infirm generally, too strict a segregation in one hospital cannot be lightly considered either on medical or administrative grounds. It would, for one thing, tend to

degrade the hospital. It will be well, therefore, that any change in this respect should take place gradually by a process of evolution based on experience. A hospital relegated to the reception of the chronic sick would lose status as a training school, and a very efficient system of interchange of staff with other institutions would require to be arranged. There will always be difficulties with regard to the transfer of patients from the acute hospital to the chronic one, and due regard must be paid to the patient's feelings in the matter. It seems on the whole most likely that accommodation will have to be reserved in all the hospitals for a proportion of the chronic sick, and the whole problem may be considered in this way—that the most efficient administration will see that cases are always sent to wherever the equipment most suited for the treatment of their disease exists. The principle would be to send difficult cases where X-ray, bio-chemical, and other special examinations and treatment are necessary to Stobhill, and to leave the question of the others to be sorted out in course of time.

Statistics of the Work of the Hospitals.—The purpose is to provide as accurately as possible, data for administrative purposes and to obtain a clear view of the work which each hospital is performing in relation to the diseases prevalent in the community. The actual figures are given in appendices to this report. Appendix I. consists of tables showing cases dismissed from hospital during the seven and a half months from 16th May to 31st December, 1930, and also for the year ending 31st December, 1931. The classification of diseases is that required by the Department of Health for Scotland for general hospital returns, and the tables show the numbers of cases dismissed from each hospital, and the percentage of these cases in each class. There is also shown the average days' residence and the percentage of the total hospital days for all the hospitals occupied by these disease groups for the periods in question. Appendix II. shows the more extended list of diseases which has been adopted for primary tabulation in cases dismissed from all the Corporation general hospitals.

In most of the disease groups there is a considerable similarity in the work done by the various hospitals, but in others there is a considerable difference. Acute infectious disease seems to have occurred mainly in Stobhill, due to the fact that this hospital admits most children. These cases were very largely transferred to infectious diseases hospitals. It may be pointed out with regard to Tables I. and II. in the Appendix that those cases developing acute infectious disease in hospital, having been admitted and treated for some other ailment, are not included in this category, but under the category of the corrected diagnosis of the condition present on admission. Stobhill also deals with the majority of cases of tuberculosis, both respiratory and non-respiratory. A slightly higher number than the due proportion of malignant disease falls to the Southern General Hospital.

Acute rheumatism, a disease which has come increasingly under observation during recent years, amounted to 1.39 per cent. of all cases, and the average duration of stay was 52 days. Slightly more than half of these cases were under 16 years of age.

The cases of venereal disease dealt with are mostly tertiary and late nervous manifestations. A few instances of acute syphilis and gonorrhœa are met with from time to time. The average duration of stay in the venereal wards in 1931 was 48 days, which is much the same as in the ward for acute cases in Belvidere Fever Hospital.

More than ten per cent. of all the patients were cases of pregnancy or diseases connected with child-bearing. The volume of this work is so large that it is made the subject of a special section of this report. (See page 374). In order to show the great increase in this branch which has taken place during the post-war years, the following table is of interest:—

PREGNANCY.—CASES TREATED IN STOBHILL, EASTERN DISTRICT, AND WESTERN DISTRICT HOSPITALS DURING THE YEARS 1911, 1912, 1913, 1930, AND 1931.

	Stobhill Hospital.	Eastern District Hospital.	Western District Hospital.	Total.
1911,	88	135	78	301
1912,	82	116	67	265
1913,	101	73	69	243
1930 (7 months only),	627	251	261	1,139
1931,	1,265	459	541	2,265

Since 1913 the numbers have increased almost ten times, and there is a prospect of an even greater increase.

A proportion of 4·53 per cent. of all cases came under the heading of mental disease. It has been for a long time the policy in Glasgow to send, where possible, every case of mental disease to an observation ward prior to certification. In this way a considerable number of cases are treated successfully and returned to their homes without the stigma of certification. During the seven months of 1930, 46 per cent., and during the year 1931, 51 per cent. were dismissed to their own homes. The proportions admitted to asylums were respectively 45·79 and 38·5. The total number of cases under this group in 1931 was 1,000, all of whom, however, were not treated in the special mental observation wards, certain cases—most of them cases of senile insanity—being transferred to asylums from the ordinary medical and surgical wards.

In 1930 an additional two-storey block containing 72 beds was taken over in Stobhill for the accommodation of mental observation cases, the total number of beds now available there for this purpose being 208. This accommodation, plus 50 beds in the Eastern District Hospital, seems to be adequate at the present time, but some con-

siderable difficulty has arisen during the past two years in finding asylum accommodation for those cases who have been certified insane. A patient must be transferred to an asylum within 14 days of certification, otherwise the certificate becomes void. Frequently cases have to be detained in Stobhill for longer periods than this after certification, and their presence in the observation ward is a source of continual anxiety to the administration, since the hospitals are not certified institutions for the reception of the insane. A special report on accommodation for mental and incipient mental cases is given in the Report on Mental Services.

Cases of senility occupy a relatively large amount of the hospital accommodation—almost five per cent. These form a special problem because they require special nursing and a considerable proportion require almost continuous watching. Senile cases are typical examples of a class which might be included under the term “chronic sick,” and their disposal has already been discussed. The fact that nothing towards radical cure can be done for them does not imply that staff can be economised in at their expense. The very reverse is often the case, and they must have sufficient attendants to maintain cleanliness and to give them the maximum possible comfort. The psychology and handling of such patients should form part of the training of every nurse. The trained nursing staff dealing with such cases may, however, be diluted by employing attendants. Altogether in the institutions 858 (3·9 per cent. of the total cases treated) were persons over 75 years of age, and 2,767 (12·5 per cent.) were persons over 65 years of age. The total number reported with a diagnosis of senility was 462, but it must be remembered that decay due to old age has an important relationship to disease of all kinds, principally diseases of the nervous, respiratory, and circulatory systems, such as hemiplegia, chronic bronchitis, and heart disease, and although senility may not be mentioned in the diagnosis of certain of these cases, it must be taken into account. Cases of this type are only very rarely seen or retained in the voluntary general hospitals.

Accidents and injuries, whether self-inflicted or not, are included under the heading “violence,” and in the short classification poisoning is also included. Twelve cases of poisoning were treated, with one fatality. Of the other 562 cases of injury, 214 were fractures. The situation of the Western District Hospital seems to favour the admission of cases of injury to that institution. The total number of deaths under this heading was 21 (ten per cent.), indicating that the injuries were not always of a minor character. In the subjoined comparative table showing the work of the Corporation and voluntary hospitals,

it is made clear the extent to which violence contributes to the respective totals.

						PERCENTAGES OF CASES OF EACH DISEASE TO TOTAL CASES DISMISSED.		
DISEASES (Short Classification).						Royal and Western Infirmary, 1930.	Corporation Hospitals, 7 months, 1930.	Corporation Hospitals, 1931.
*Acute Infections,	...	...	...	...	...	·19	1·26	1·60
Influenza,	...	...	...	...	...	·14	·63	·87
Tuberculosis—Respiratory,	...	...	...	...	...	·28	1·88	1·25
„ Non-respiratory,	...	...	...	...	...	·84	·97	·55
Malignant Disease,	...	...	...	...	...	4·02	2·39	2·29
Rheumatism—Acute,	...	...	...	...	...	1·22	1·73	1·39
„ Muscular, etc.,	...	...	...	...	...	·35	1·10	·99
„ Chronic Arthritis,	...	...	...	...	...	·81	1·16	1·19
Venereal,	...	...	...	...	...	·06	·40	·25
Pregnancy and Diseases connected with Child- bearing,	...	...	...	...	...	·12	10·30	11·21
Congenital Debility and other Diseases of Early Infancy and Malformations,	...	...	...	...	...	—	·30	·90
Mental,	...	...	...	...	...	·03	6·48	4·53
Senile Decay,	...	...	...	...	...	—	2·52	2·54
Violence,	...	...	...	...	...	20·26	2·80	2·60
<i>Diseases not included in above—</i>								
Nervous System,	...	...	...	...	...	6·20	7·67	7·15
Respiratory System,	...	...	...	...	...	2·46	13·29	13·02
Circulatory System,	...	...	...	...	...	3·11	4·73	5·38
Digestive System,	...	...	...	...	...	36·35	13·59	15·56
Genito-Urinary System,	...	...	...	...	...	8·42	3·64	4·09
Skin,	...	...	...	...	...	1·15	4·09	3·31
Other Diseases,	...	...	...	...	...	13·81	7·86	8·06
No Appreciable Disease,	...	...	...	...	...	·18	4·14	3·16
Born in Hospital,	...	...	...	...	...	—	7·07	8·11
						100·00	100·00	100·00

* Includes diseases notifiable under the Infectious Diseases (Notification) Act, 1899, with exception of Influenza, Pneumonia, Tuberculosis and Puerperal Fever. It also includes Measles, German Measles, Chickenpox, Whooping Cough and Mumps.

Diseases of the central nervous system other than mental accounted for 7·15 per cent. of the cases during the year, and occupied 17·18 per cent. of the total hospital accommodation. 110 cases of syphilis of the central nervous system were treated. Cerebral hæmorrhage, embolism, thrombosis and hemiplegia formed the largest group of nervous diseases, with a fatality rate in hospital of over 50 per cent.

Diseases of the respiratory system amounted to 13·2 per cent. of all cases, and occupied 11·63 per cent. of the total hospital accommodation. The following table shows the cases and deaths from pneumonia and acute bronchitis and reflects clearly the incidence and fatality of pneumonia at the extremes of life.

ACUTE PNEUMONIA AND ACUTE BRONCHITIS.

CASES DISMISSED FROM OR DIED IN THE CORPORATION GENERAL HOSPITALS DURING THE YEAR ENDED 31st DECEMBER, 1931.

AGE DISTRIBUTION.	Acute Pneumonia.		Acute Bronchitis.	
	Cases.	Deaths.	Cases.	Deaths.
Not stated,	1	—	2	—
— 1 year,	98	59	111	4
— 3 years,	158	64	109	6
— 5 years,	33	5	31	1
—16 years,	82	2	89	—
—25 years,	37	6	59	1
—35 years,	29	10	112	1
—45 years,	44	20	114	3
—65 years,	89	56	72	7
—75 years,	52	43	18	8
+75 years,	14	11	6	2
Total,	637	276	723	33

The deaths from acute bronchitis are comparatively few, and this seems to indicate that in many cases in ages up to 65 years the disease was of a comparatively trifling character. Of chronic bronchitis there were 1,242 cases treated, with 159 deaths.

Diseases of the heart and circulation amounted to 5·38 per cent. of the total, and occupied 7·65 per cent. of the accommodation. A large proportion of these cases were of myocardial failure, often complicating other conditions.

The group with the highest frequency of all was diseases of the digestive system—3,438 cases, or 15·56 per cent. of all cases treated. Only 6·48 per cent. of the hospital accommodation, however, was required for the treatment of these cases, a proportion about equal to that required for mental cases. Diseases of the digestive system amount to 36 per cent. of the admissions to the voluntary hospitals, and form a large proportion of the urgent work carried out there, appendicitis being one of the principal affections. In the Corporation hospitals, by contrast, only 98 cases of appendicitis were admitted during the year 1931.

By arrangement with the Education Department, 1,524 cases were admitted to the Western District Hospital for treatment of hypertrophy of tonsils and adenoids. This large number of patients and the short stay which they required must be taken into consideration in that they increase the total number of cases of the digestive system and reduce the average duration of stay.

Diarrhoea and enteritis in children under five years accounted for 303 cases, with the high fatality rate of about 45 per cent. 140 cases of hernia were treated, and 100 operations were performed.

Diseases of the genito-urinary system include only 904 cases. Acute and chronic nephritis amounted to 83 and 106 respectively, figures which seem much smaller than would be expected. Gynaecological conditions form the largest group under this heading, and most of these were women under 45 years of age, indicating that the hospitals are performing a useful function in connection with these diseases.

The heading, "other diseases," includes parasitic diseases, diseases of the blood, constitutional diseases, inflammation and diseases of the bones and joints, deformities, etc., and 1,780 such cases were dealt with. Under this heading are also included those cases where illness was present, but the diagnosis was ill-defined or not specified. 698 patients were found not to be suffering from any definite disease at all, and of these the great majority were healthy children admitted to Stobhill with their parents or for some sociological reason. These latter occupied nearly four per cent. of the total accommodation during the year, and their average residence was 55.6 days.

Briefly stated, the greater part of the work of the general hospitals is concerned with pregnancy and diseases connected therewith, insanity, respiratory diseases—both acute and chronic, apoplexy, etc., malignant disease, senility, cardiac disease, and diseases of the skin and subcutaneous tissues. Other two large groups are "disease ill-defined, or not stated," and "no appreciable disease." With the exception of pregnancy and the group "no appreciable disease," the age incidence of patients is well over the middle period of life, as one would expect. The average duration of stay of all cases in hospital was 44.55 days, but in certain groups the period of stay was very much longer; for example, non-pulmonary tuberculosis averaged 135 days, syphilis of the central nervous system 160 days, and post-encephalitis lethargica 500 days.

Encephalitis Lethargica.—Two wards, one male and one female, consisting of 34 beds each, are devoted to the treatment and investigation of cases of post-encephalitis lethargica. This is consequent upon an arrangement made by the late Parish Council and the Department of Health for Scotland, whereby cases were to be received from all parts of Scotland as vacancies occurred. The idea was to concentrate these patients into one centre for investigation. It was found that the two wards were totally insufficient to accommodate all the cases requiring supervision, and there still remains a large number of cases of post-encephalitis distributed throughout the various poorhouses, asylums and hospitals in different parts of the country. The idea now is to attempt to keep the cases in Stobhill for a period of six months or so for observation and treatment, thereafter to return them to their local authority or transfer them to some institution where they can be received permanently.

A special report on encephalitis lethargica and its sequelæ is given on page 97.

Surgical Operations.—The surgical work carried out in the general hospitals during the seven months of 1930 and the year 1931 is shown in Appendix III. It is to be observed that in the Western District Hospital there were 1,679 operations on the throat and nose, and these were principally for the removal of hypertrophic tonsils and adenoids, under the arrangement with the Education Department. The amount of gynæcological surgery which is done in Stobhill and the district hospitals is also worthy of note. Another important item is the number of operations on the brain, and in this highly specialised branch of surgery considerable success is being achieved by the visiting surgeon

to Stobhill. The fact that it is possible to carry out this type of work is an indication of the up-to-date character of the equipment of this institution.

Methods of obtaining Hospital Statistics now in Operation.—As from 1st January, 1932, the hospital returns have been arranged so that mechanical tabulation can be employed. A case record summary sheet has been prepared embodying certain data in the exact order in which it has to be punched on the Hollerith card. A facsimile of the sheet is shown below:—

Corporation of Glasgow—Public Health Department.

CASE RECORD SUMMARY

(To accompany daily dismissal sheet).

Hospital.....	Hospital Case No.....
Name of Patient.....	
Address.....	
Age (in years).....	Sex $\frac{\text{male}}{\text{female}}$ Married, Single, Widowed.
Date of Admission	
Method of Admission.	
1. On certificate of D.M.O.	8. Transfer from Poorhouse
2. On certificate of other Practitioner	9. Transfer from Maternity Hospital (including overflow)
3. Per Hospital Consultant	10. Direct admission as emergency.....
4. Specialist Clinic	11. By arrangement with other Authority.....
5. Transfer from other Corp. Gen. Hospital.....	12. Born in Hospital—Legitimate
6. Transfer from Infectious Disease Hospital.....	13. Born in Hospital—Illegitimate.....
7. Transfer from Voluntary Hospital	14. Others (to be specified)
Presumed Disease stated on Admission	
Previously an inmate of Corporation General Hospital $\frac{\text{yes}}{\text{no}}$	
Date of Dismissal No. of Days Residence	
Disposal.	
1. Home	7. To Infectious Disease Hospital
2. To other General Hospital	8. To Tuberculosis Hospital
3. To Asylum	9. Boarded Out
4. To Convalescent Home	10. Died
5. To Voluntary Hospital	11. Others (to be specified).....
6. To Out-patient Clinic.....	
Final Diagnosis (written)	
.....	
.....	
.....Code No.....	
Condition on Dismissal.	
1. Cured or recovered from acute attack..... 2. Improved..... 3. No change..... 4. Worse..... 5. Died...	
Capacity for Work or School.	
1. Capable of usual employment	4. Incapable of any employment.....
2. Temporarily incapable of usual employment...	5. Suitable for Special School.....
3. Permanently incapable of usual employment...	6. Not applicable.....
Operations (written)	
.....	
No. of operations.....	Code No. of principal operation.....
Anæsthetics—1. General or Spinal.	2. Local..... 3. None.
Date completed	Initials of Clerk.....
(Additional particulars for Maternity cases to be shown on back).	

The patient's name and other identification particulars are included for reference purposes only. The remainder of the sheet, with the exception of the diagnosis and a few other details, is completed by placing a cross in the appropriate space. A sheet is completed for each patient on dismissal from hospital, and the completed sheets are sent to the central office weekly. It may be pointed out also that the terms on the summary sheet are arranged so that they are practically in the same order as they occur in the hospital case paper. The amount of clerical work involved is not unduly great, and up till the present date, 1st March, the system has worked with great smoothness.

On the reverse side of the sheet (shown below) are special details with regard to maternity cases, and this side is completed by the registrar or resident physician in charge of the lying-in ward.

ADDITIONAL PARTICULARS FOR MATERNITY CASES.

Parity.....

Ante-Natal Supervision.

- | | |
|-----------------------------|--------------------------|
| 1. None | 4. Ante-Natal Ward |
| 2. Maternity Hospital..... | 5. Private |
| 3. Corporation Clinic | |

Duration of Labour.....hours.

Toxaemia.

- | | | | |
|-----------------|-----------------|-----------------|---------------|
| 1. No Toxaemia. | 2. Hyperemesis. | 3. Albuminuria. | 4. Eclampsia. |
|-----------------|-----------------|-----------------|---------------|

Presentation.

- | | |
|--------------------|-----------------------------|
| 1. Normal | 4. Breech—simple |
| 2. P.O.P. | 5. Breech—complicated |
| 3. Brow—face | 6. Transverse..... |

Disproportion.

- | | | |
|----------------|---------------------------|---------------------------------|
| 1. Normal..... | 2. Contracted Pelvis..... | 3. Large or abnormal child..... |
|----------------|---------------------------|---------------------------------|

Concurrent disease independent of Pregnancy.

- | | |
|--------------------------|------------------------------------|
| 1. No disease | 4. Pulmonary Tuberculosis |
| 2. Cardiac disease | 5. Other Respiratory Disease |
| 3. Renal disease | 6. Other |

Complications of Parturition.

- | | |
|-------------------------------------|--------------------------------------|
| 1. None | 4. Hæmorrhage—adherent placenta..... |
| 2. Hæmorrhage—accidental | 5. Shock |
| 3. Hæmorrhage—placenta-prævia | 6. Others |

Obstetric Operations.

- | | |
|---------------------------|---|
| 1. None | 5. Manual removal of placenta..... |
| 2. Forceps..... | 6. Craniotomy or other destructive operation... |
| 3. Induction | 7. Curettage |
| 4. Caesarian section..... | 8. Other..... |

Morbid Puerperium.

- | | |
|------------------|--------------------------------|
| 1. None | 4. Postpartum Hæmorrhage |
| 2. Pyrexia | 5. Other |
| 3. Fever | |

Child.

- | | |
|----------------------|---------------------------------------|
| 1. Abortion | 4. Neo-Natal death |
| 2. Miscarriage | 5. Child dismissed alive |
| 3. Still-born | 6. Mother dismissed undelivered |

Hollerith Card completed.....

The amount of information on this side is necessarily somewhat limited by the fact that the tabulating machine employed has only 45 vertical columns, but nevertheless it will suffice for the preparation of tables giving a reasonable picture of the work done.

At present the Corporation institutions deal mainly with normal obstetric cases, but there is a likelihood that in the future the amount of abnormal work will increase, and consequently the utility of this form of keeping of statistical records will increase. The reason why the maternity particulars have been included on the reverse side of the sheet is in order to avoid the extra clerical labour of tabulating the necessary identification particulars. Doubtless as the scheme extends a separate sheet and card may have to be used for maternity cases.

Out-Patient Clinics.—During the past two years the establishment of out-patient clinics in some of the hospitals has been commenced in certain subjects. The out-patient clinics attached to a hospital should exist for two main purposes. These are (1) in order that the results of the in-patient treatment may be followed up and that certain lines of treatment may be continued; and (2) for purposes of specialists' advice and diagnosis which are by reason of their nature beyond the capacity of the ordinary practitioner. Cases in the latter category should all be referred by medical practitioners, and no fresh cases should be seen at these clinics. The out-patient department of a hospital should not be confused with clinics where treatment is given to patients for the first time. There are other two subsidiary functions which might reasonably be allocated to out-patient clinics, namely, the refereeing of cases with a view to their assessment as to fitness for work or otherwise; and also, certain of the hospitals being suitably situated for the treatment of minor casualties, it would appear to be reasonable that such cases should receive treatment at the out-patient centre, at least in the first instance.

Such out-patient clinics have been established at the general hospitals for medicine and surgery, dermatology, psychology, ante-natal diagnosis and treatment, gynæcology and dental treatment. The consultant staffs of the hospitals with the assistance of the resident staffs carry out this work. It must be confessed, however, that these out-patient clinics are only operating to a very small extent, and at present have little or no influence on the work of the hospitals; indeed, the total number of cases actually on the books as attending at the end of the year was 106. There has been experienced a certain difficulty in getting patients to turn up at these sessions, and without the assistance of some method of obtaining domiciliary contact it seems unlikely that these clinics will be more successful. This type of work has considerable room for expansion, but, apart from the failure of patients to attend, there are additional obstacles in that accommodation is strictly limited at both the Eastern and Western District Hospitals, and that Stobhill, with its complete equipment, is not readily available because of its distance from the centre of the city. To run these clinics efficiently would necessitate an increase in the medical staffs and a more definite liaison between the clinics and the district medical officer.

A considerable amount of minor casualty work is carried out by the residents at the Western District Hospital, 1,673 such cases having been dealt with during the past year.

Proper out-patient accommodation and staff is highly necessary both from the point of view of following up cases and also of saving hospital bed accommodation. Improved premises are required both at the Eastern and Western District Hospitals, and a system of recording of cases would have to be devised, so that there would be continuity in their observation. It might be possible also to initiate certain special departments for out-patients at Stobhill.

Corporation General Hospitals—Obstetrical Section.—As pointed out earlier in this report, the obstetrical work carried out by the hospitals has increased enormously within recent years. In 1930-31 the accommodation in Stobhill for maternity patients was completely remodelled and now consists of an up-to-date obstetric block with 74 maternity beds, together with obstetric operating room, and all other facilities. The subjoined table shows the extent of the work:—

**CORPORATION GENERAL HOSPITALS—OBSTETRICAL SECTION.—CASES
DISMISSED DURING THE YEAR 1931.**

Cases Delivered in Hospital,	Stobhill Hospital.	Eastern District Hospital.	Western District Hospital.	Southern General Hospital.	Total.
Dismissed well,	982	332	386	101	1,801
Died,	9	2	4	1	16
Died (within 24 hours of admission), ...	(1)	(1)		(1)	(1)
Transferred,	3	3	—	5	11
<hr/>					
Total dismissals of cases delivered in hospital,	994	337	390	107	1,828
<hr/>					
Method of admission of above cases—					
Admitted during ante-natal period, delivered in hospital,	173	45	59	46	323
Admitted to Labour Ward (direct admission),	27	254	223	32	536
Admitted to Labour Ward (via Glasgow Royal Maternity Hospital), ...	794	38	108	29	969
	994	337	390	107	1,828
<hr/>					
Cases admitted during ante-natal period, dismissed undelivered,	167	49	76	38	330
<hr/>					
Cases admitted after delivery, ...	19	2	2	2	25
<hr/>					
Abortions and Miscarriages,	85	71	73	65	294
<hr/>					
Infants, dismissed alive,	929	314	366	97	1,706
„ still-born,	36	19	14	6	75
„ neo-natal deaths,	49	13	21	4	87
<hr/>					
Total,	1,014	346	401	107	1,868

The cases described as being admitted via the Maternity Hospital are patients who were passed on from that institution by reason of pressure on the accommodation there. An arrangement was in operation between the Directors of the Maternity Hospital and the

late Parish Council that a certain number of overflow normal cases could, instead of being admitted to the Maternity Hospital, be transferred from the maternity receiving room to Stobhill and delivered there. The volume of these cases has steadily increased until it now amounts to 50 per cent. of the obstetrical work done in the Corporation hospitals. The Maternity Hospital Directors paid for the maintenance of the cases while in Stobhill. Since the general hospitals have been taken over by the Corporation however, these payments are no longer made, but in cases from authorities outside of the city investigation is made by the Director of Public Assistance, and the cost of maintenance is claimed from the authority or person concerned.

The following table shows the incidence of puerperal fever and pyrexia, together with septic and non-septic deaths in the obstetric sections of the Corporation general hospitals.

PUERPERAL FEVER AND PYREXIA IN LOCAL AUTHORITY HOSPITALS
FOR YEAR 1931.

HOSPITAL.	No. of Cases.		Cases per 1,000 Births.		No. of Deaths.		Deaths per 1,000 Births.		Case Mortality.
	Fever.	Pyrexia.	Fever.	Pyrexia.	Fever.	Other (Non-septic) Causes.	Fever.	Other (Non-septic) Causes.	Fever.
Stobhill Hospital, ...	24	19	24.5	19.4	4	9	4.1	9.2	16.7%
Western District Hospital,	7	7	18.6	18.6	—	4	—	10.6	—
Eastern District Hospital,	6	5	18.5	15.4	—	2	—	6.2	—
Southern General Hospital,	6	3	55.6	27.8	1	—	9.0	—	16.7%
Total, ...	43	34	24.1	19.0	5	15	2.8	8.4	11.6%

These institutions are general hospitals, and consequently are liable to receive all kinds of cases, so that for the purposes of the above table only those cases have been included where delivery took place in the hospital. The total number of deaths associated with pregnancy occurring during the year was 26, of which 11 were due to puerperal sepsis. Six of these were omitted from the statistics of the obstetrical section for the following reasons:—

Two were cases of abortion which occurred outside and who were admitted to hospital already septic; two were cases which had been delivered outside and had already been treated in a fever hospital for puerperal sepsis; one case was confined outside and sickened on the second day of the puerperium prior to admission to Stobhill; and one case had a miscarriage three weeks before admission, and was admitted as acute rheumatism. None of these six cases was associated with the hospital in any way as far as obstetrical treatment was concerned. The remaining five cases who died of puerperal sepsis included one case of endocarditis; one case with a long, difficult labour; and three with more or less normal confinements.

Of the 15 non-septic deaths, six were due to pulmonary tuberculosis, three were due to toxæmias of pregnancy, two occurred in patients admitted with pneumonia, and two were cases of cardiac disease. One patient died following Cæsarean section for placenta-prævia, and another following prolonged labour.

The non-septic deaths can, therefore, be classified as follows:—

Pulmonary Tuberculosis,	...	...	...	...	6
Toxæmias of Pregnancy,	...	...	...	...	3
Pneumonia,	...	...	...	...	2
Cardiac Disease,...	...	...	...	...	2
Cæsarian Section for Placenta Prævia,	...	...	...	...	1
„ „ Prolonged-Labour,	...	...	...	...	1

Pregnancy and Tuberculosis.—This important aspect of obstetrical work has received much consideration in Stobhill Hospital, and it has been the practice to send the majority of pregnant tuberculous women who require institutional treatment to this hospital. Cases are transferred from the tuberculosis hospitals or sanatoria towards the end of term, and in a considerable number of cases the method of treatment has been Cæsarean section under a spinal anæsthetic accompanied by sterilisation. It is acknowledged that the best treatment for pregnancy in a tuberculous woman is to admit her to a sanatorium and, since the most dangerous period is after delivery, the sanatorium treatment should be continued by re-transferring the patient from the obstetrical ward. In actual experience, however, it is found that many women refuse to go back to a tuberculosis institution. The artificial termination of pregnancy is not generally recommended unless the diagnosis is made within the first two months.

Ante-Natal Supervision.—The amount of ante-natal supervision afforded to most of the obstetrical patients can only be described as very inadequate, and, since the Corporation hospitals are primarily places for the treatment of the sick poor, it is impossible to insist that cases will only be admitted after having had adequate ante-natal care.

Table for 1930.—In order to complete the report as to the amount of work done by the obstetrical branch from 16th May to 31st December 1930, the following table is appended:—

OBSTETRICAL BRANCH.

RETURN OF CASES DISMISSED DURING PERIOD, 16th MAY— 31st DECEMBER, 1930.

Cases delivered in Hospital.							Stobhill Ho-pital.	Eastern District Hospital.	Western District Ho-pital.	Southern General Ho-pital.	Total.
Dismissed well,	...	...	...	...	...	...	478	184	165	53	880
Died,	...	...	...	...	...	...	9	—	2	—	11
Died (within 24 hours of admission),	...	...	...	...	...	...	—	—	—	—	—
Transferred,	...	...	...	...	...	...	3	2	—	1	6
Total dismissals of cases delivered in Hospital,							490	186	167	54	897
Method of admission of above cases—											
Admitted during ante-natal period, delivered in hospital,	...	...	...	...	...	...	84	43	40	41	208
Admitted to Labour Ward (direct admission),...	...	...	...	...	...	...	5	119	89	5	218
Admitted to Labour Ward (via Glasgow Royal Mater- nity Hospital),	...	...	...	...	...	...	401	24	38	8	471
Total,	...	...	...	...	...	...	490	186	167	54	897
Cases admitted during ante-natal period, dismissed undelivered,							72	27	48	36	183
Cases admitted after delivery,	...	...	...	...	...	...	28	—	—	4	32
Abortions and Miscarriages,	...	...	...	...	...	...	37	38	46	13	134

During this period, 20 cases of puerperal sepsis occurred, and 15 cases were returned as developing pyrexia. The total number of deaths occurring in patients delivered in hospital was 11.

Outdoor Medical Services.—On the transfer of the medical services of the Parish Councils to the Corporation, very marked anomalies existed, both with regard to the areas allotted to individual practitioners and to their remuneration, so that it was desirable to devise a scheme whereby payment should bear direct relationship to the amount of work done. The method of administration is to allocate a definite area of the city to each part-time medical officer. A new form of register was drawn up in December, 1930, and in this the particulars of each patient are entered in columns appropriately headed. From this register, amongst other information, the number of visits and consultations performed by each medical officer can be ascertained, and the remuneration is adjusted accordingly.

The number of visits paid by the District Medical Officers during the year amounted to 23,230 and 113,217 consultations were held. Statutory quarterly visits were paid to boarded-out mental defectives, and these numbered 1,153. The heaviest months of the year, as far as visits and consultations were concerned, were the first three and last three, the amount of work during the middle six months being, on the average, about 30 per cent. less. The number of vaccinations performed by the District Medical Officers during the year was 1,759, 2,369 were postponed through illness, and 131 cases were returned as insusceptible.

Dental Treatment.—The number of persons supplied with artificial dentures under the Poor Law, after approval by the Medical Officer of Health, was 280. The total cost of this service was £1,429 6s. 2d., the average per patient being £5 2s. 1d.

Clinic Premises.—During the year further improvements were made in the premises for out-door medical consultations. The clinics at Robert Street and Portman Street were closed and the work transferred to the Govan Town Hall. The accommodation obtained there required very little in the way of alteration because it had formerly been occupied by this Department as a tuberculosis dispensary. It has not been possible to obtain entire possession of the rooms in the Govan Town Hall, and, while the accommodation is not ideal, it is a great improvement on the two clinics which were closed. Five medical officers now use the Govan Town Hall for consultation.

Increase in Staff of Outdoor Medical Officers.—During the year the part-time staff was augmented by three medical officers, necessitated by the increase in the volume of work.

Nursing Services.—One of the objects of the Local Government Act was to set free some of the accommodation in the general hospitals for the treatment of the general sick of the district, but no movement can

be made in this direction until the needs of the statutory poor and destitute have been supplied. Hitherto, principally on account of the housing conditions of large sections of the population of the city, hospitalisation of the sick was carried out on a very extensive scale. Many cases of minor ailments were given institutional treatment. It seemed reasonable to suppose that, provided facilities were available, a considerable number of these patients could be dealt with at home. Accordingly, an experiment was carried out, as described in the following report, in order to ascertain to what extent the hospitals could be relieved by the domiciliary treatment of certain types of case. As the report states, of the cases referred by the District Medical Officers to the nurses, some 32 per cent. would otherwise have been sent to hospital. It seems clear that there is a definite place for a domiciliary nursing service based on public health lines which would enable a medical officer to maintain close contact with his patients and with other branches of public health activity.

OUTDOOR MEDICAL SERVICES—NURSING SERVICES.

REPORT ON WORK DONE DURING EXPERIMENTAL PERIOD, JANUARY TILL JULY, 1931.

Three nurses selected from the existing staff of health visitors were attached to certain district medical officers for duty in connection with the Outdoor Medical Services.

The routine was for each nurse to attend the consulting room of the district medical officer in the morning and to take instructions from him there. In the evening, the nurses reported at the central office, where they wrote up the particulars of cases visited and work done, and discussed any matters of importance with the medical officer of the department. Forms for the booking of cases were drawn up and from these extracts were made each month and a statistical summary of the work done was prepared. Attached to this report is a table showing these details for the whole period, 12th January till 16th July, 1931.

Nature of the Work Done.—The work done could be divided into three categories :—

- (1) Actual nursing care given to patients at home ;
- (2) Administrative action in referring cases for attention to some other department of the Corporation or voluntary agency, where they could be suitably dealt with ; and
- (3) Making reports of cases to the district medical officer, *i.e.*, simple follow-up work.

In connection with (1), nursing care, the facilities at the disposal of the nurses during the period were rather meagre. There was no proper machinery for issuing and dealing with medical equipment, such as utensils, rubber sheets, bedding, etc. The nurses, however, carried out as much as possible in the way of bed-making, bathing of patients, dressings, etc., and also gave instruction in these matters to those who were in attendance on the patient.

With regard to (2), the administrative action which the nurse could take with regard to the suitable disposal of the case, this is shown in the part of the report dealing with cases requiring correlation. It will be seen that quite a number of cases were referred to child welfare clinics, school clinics, and convalescent home. Of all the cases dealt with by the nurses, 93 had ultimately to be sent either to a general or other Corporation hospital. Sixteen patients were put in touch with voluntary agencies and thereby admitted to convalescent homes. This was a most important part of their work, and it appears that the district medical officers require to be continually reminded of the various departments and agencies which are established for the purpose of dealing with certain types of case.

With regard to (3), the present standard of district work does not permit of the follow-up of cases as understood under the tuberculosis scheme, and the services of the nurse in this respect were usually for the purpose of saving the necessity for a visit by the district medical officer. In the case of measles, for example, the medical officer frequently obtained information as to the patients' progress from the nurse.

Type of Cases Dealt with.—In the main, cases of all ages were referred to the nurses, but there was a tendency for larger numbers of children of school age and under and of old people to be dealt with. In one district, the proportion of children was greater than of any other age (60 per cent.).

Diseases from which the patients suffered were mostly chronic and sub-acute ailments in older people and acute illnesses in children. In adults, cardiac disease, bronchitis, gastric ulcer, cancer, nephritis, rheumatism, varicose ulcer, and diseases of this type formed the bulk of the work; whereas in children, pneumonia, tonsillitis, gastro-enteritis, measles and whooping-cough were commonly referred to the nurse. The injection of insulin in diabetes cases was also deputed to the nurse. The cases were usually of relatively short duration, involving on the average seven visits, although some cases were visited as often as 30 times.

Extent of Work.—The amount of this kind of work which can be accomplished by a nurse working under the conditions of a health visitor was shown to be from 10 to 15 visits per day. This involves giving nursing care, advice and making arrangements for further treatment or care of cases. Usually each nurse was given one or two new cases per day and carried some 25 to 30 cases on her books at one time. The average number of cases sent to hospital by each medical officer in the industrial districts of the city is between two and three per day, and this figure should be considered along with new cases undertaken by the nurses. It may be pointed out that the district medical officer in these districts usually makes three to four domiciliary visits to poor law patients daily.

In each pro forma issued to the nurse there was a space to be filled up by the district medical officer where he indicated whether or not in

his opinion the advent of the nurse had been the means of preventing the necessity for the patient's admission to hospital. For all districts for the six monthly period the estimate arrived at on this basis was that 178 out of 557 cases finally disposed of would have been sent to hospital. The saving in hospital accommodation, as far as the cases dealt with by the nurses are concerned, would, therefore, be 32 per cent. The standard as to what represented a hospital bed saved undoubtedly varied as between the various district medical officers, as will be seen in perusing the separate returns.

In general, the district medical officers seem convinced that the nurses have done valuable work, and the system is acceptable to them in all its aspects. One of the medical officers was particularly enthusiastic, and is quite definitely of the opinion that the influence of the nurses was beneficially evident in improved standards of hygiene and cleanliness, etc., in the homes of the patients.

With reference to the future policy of the department with regard to domiciliary nursing services, the result of this experiment shows that there is a definite place for a health visitor who will carry out nursing care and who is sufficiently well acquainted with the other departments of the Corporation to enable her to bring cases into contact with the appropriate department or treatment centre. Only in three instances were cases referred to the district nurse for attention. It is found as a rule that the chronic case may require a certain amount of regular nursing care to begin with and periodic nursing care later, but the home attendants usually become able to do most of the work. Cases requiring large dressings to be done by a skilled person over a long period of time are apparently not very common. Bed-ridden cases of rheumatism, paralysis, and so on, can usually be dealt with by their relatives after sufficient instruction. There seems, therefore, to have arisen comparatively few instances where it has been necessary to co-operate with the District Nursing Association.

OUTDOOR MEDICAL SERVICES—NURSING SERVICES.

REPORT FOR EXPERIMENTAL PERIOD, 12th JANUARY, 1931, TO 16th JULY, 1931.

Total visits,	4,136
Total cases booked,	601
Less cases written off,	557
Referred to District Medical Officer on Discontinuation of service, <u>44</u>	

Age Distribution of Cases Booked.—

— 1 year,...	43
— 3 years,	86
— 5 years,	55
—15 years,	126
—20 years,	14
—30 years,	26
—40 years,	55
—50 years,	37
—60 years,	36
+ 60 years,	123
	<u>601</u>

Housing Accommodation.—

	Corporation House.	Others.	Totals.
1 Apartment,	—	207	207
2 Apartments,	35	316	351
3 Apartments and up,	21	22	43
	<u>56</u>	<u>545</u>	<u>601</u>

Of 557 Cases Written off.—

No. of beds saved, 178=32.1 per cent.

Sleeping Accommodation.—

No of patients with bed to self,	185
No of patients with others in same bed,	416
	<u>601</u>

Efficiency of Attendant.—

Efficient,	198
Fairly efficient,	289
Inefficient,	114
	<u>601</u>

Cleanliness of Houses.—

Clean,	222
Fair,	286
Dirty,	93
	<u>601</u>

*Disposal of Cases Written off.—**Not requiring Correlation—*

Well at home,	232
Died at home,	26
To attend public dispensary,	62
	<u>320</u>

Requiring Correlation—

Child Welfare Clinic,	87
Ante-natal Clinic,	2
School Clinic,	13
Tuberculosis Clinic,	7
V.D. Clinic,	1
Corporation Hospital,	93
Convalescent Home,	16
Specialist Outdoor Service,	2
District Nurse,	3
Others,	13
	<u>237</u>
	<u>557</u>

Table of Work Done.—

Number of beds made,	353
Bathing,	261
Dressings,	584
Manipulations,	1,035
Others,	194
	<u>2,427</u>

TABLE 1. (a).—GENERAL HOSPITALS.—NUMBER OF CASES DISMISSED FROM EACH HOSPITAL FROM 16th MAY TO 31st DECEMBER, 1930, ARRANGED ACCORDING TO DISEASE AND SEX.

DISEASES (Short Classification).	STOBHILL.			EASTERN DISTRICT.			WESTERN DISTRICT.			SOUTHERN GENERAL.			TOTALS.			Percentage of Total Cases dealt with.	Average Days' Residence.	Percentage of Hospital Accommodation Occupied.
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			
Acute Infections, ...	72	61	133	3	4	7	1	1	2	4	6	10	80	72	152	1.26	59.1	1.53
Influenza, ...	16	8	24	11	10	21	10	—	—	10	12	10	22	49	28	.63	24.1	.32
Tuberculosis—Respiratory, ...	56	97	153	14	1	15	5	3	8	41	11	52	116	112	228	1.88	88.9	3.45
Tuberculosis—Non-respiratory, ...	54	37	91	2	2	4	4	3	7	8	8	16	68	50	118	.97	173.4	3.49
Malignant Disease, ...	79	95	174	13	21	34	8	16	39	26	65	139	150	289	2.39	59.6	2.94	
Rheumatism, Acute, ...	43	59	102	23	19	42	20	15	35	17	13	30	103	106	209	1.73	52.4	1.87
Rheumatism, Muscular, etc., ...	29	20	49	15	8	23	10	1	11	43	7	50	97	36	133	1.10	24.9	.56
Rheumatism, Chronic Arthritis, ...	17	29	46	7	14	21	11	6	17	39	17	56	74	66	140	1.16	95.3	2.28
Veneral, ...	16	17	33	—	—	—	2	1	3	6	6	12	24	24	48	.40	119.4	.98
Pregnancy and Diseases connected with child bearing, ...	—	627	627	—	251	251	—	261	261	—	107	107	—	1,246	1,246	10.30	18.2	3.88
Congenital Debility and other Diseases of early infancy and malformations, ...	9	4	13	6	4	10	5	4	9	2	2	4	22	14	36	.30	12.5	.08
Mental, ...	145	181	326	180	155	335	6	5	11	66	46	112	397	387	784	6.48	54.3	7.26
Senile Decay, ...	58	83	141	17	20	37	13	20	33	33	61	94	121	184	305	2.52	116.2	6.05
Violence, ...	62	32	94	32	15	47	70	55	125	47	26	73	211	128	339	2.80	31.9	1.84
<i>Diseases not included in above—</i>																		
Nervous System, ...	257	237	494	66	41	107	42	25	67	159	101	260	524	404	928	7.67	99.2	15.71
Respiratory System, ...	422	323	745	163	92	255	119	74	193	307	108	415	1,011	597	1,608	13.29	44.4	11.35
Circulatory System, ...	124	115	239	76	41	117	43	33	76	100	41	141	343	230	573	4.73	68.5	6.70
Digestive System, ...	311	193	504	142	59	201	352	357	709	166	64	230	971	673	1,644	13.59	21.4	6.00
Genito-Urinary System, ...	74	117	191	43	67	110	21	45	66	34	40	74	172	269	441	3.64	36.4	2.74
Skin, ...	197	147	344	4	—	4	3	8	11	83	53	136	287	208	495	4.09	59.8	5.05
Other Diseases, ...	225	224	449	76	54	130	64	53	117	137	118	255	502	449	951	7.86	50.4	8.17
No appreciable disease, ...	234	189	423	7	2	9	2	3	5	40	24	64	283	218	501	4.14	67.2	5.75
Born in Hospital, ...	239	213	452	94	80	174	82	87	169	34	26	60	449	406	855	7.07	13.7	2.00
	2,739	3,108	5,847	994	960	1,954	893	1,068	1,961	1,417	921	2,338	6,043	6,057	12,100	100.00	48.44	100.00

GENERAL HOSPITALS DURING THE YEAR ENDED 31st DECEMBER, 1931.

GROUPS.

	-25	F.	M.	-45	F.	M.	-65	F.	M.	-75	F.	M.	+75	F.	M.	Total.	F.	Total.	Grand Total.	M.	Deaths.	F.	Total.
6		14	51	34	19	17	2	7	2	2	103	99	193						193	8	5	13	
6		14	12	15	8	9	1	1	1	1	164	189	353						353	10	8	18	
1		49	51	41	9	20	4	4	—	1	137	170	307						307	2	4		
3		3	9	10	5	5	2	2	1	1	33	35	68						68	4	7	11	
5		4	14	12	10	6	—	—	—	—	32	24	56						56	2	1	3	
1		14	74	29	76	22	11	3	1	1	201	76	277						277	78	32	110	
1		5	22	20	9	5	1	—	—	1	68	54	122						122	26	21	47	
7		5	43	34	72	52	20	20	7	1	150	113	263						263	8	5	13	
5		1	82	28	57	19	16	4	1	2	164	56	220						220	—	—	—	
—		1	2	—	1	—	—	—	—	—	4	2	6						6	—	—	—	
2		14	18	9	15	3	—	1	—	2	152	119	271						271	—	—	—	
5		13	32	51	33	57	19	14	1	3	100	142	242						242	11	17	28	
—		—	—	—	—	—	—	—	—	—	—	—	—						—	—	—	—	
—		1	5	8	1	7	1	—	—	—	10	16	26						26	3	8	11	
—		—	2	2	13	6	6	3	1	3	23	14	37						37	17	7	24	
—		—	16	8	83	46	59	29	9	7	168	90	258						258	131	60	191	
—		—	1	1	15	1	8	1	3	—	27	3	30						30	19	1	20	
—		—	—	19	—	27	—	13	—	4	—	63	63						63	—	34	34	
—		—	—	5	—	9	—	3	—	2	—	20	20						20	—	14	14	
—		—	2	1	20	17	18	5	3	4	43	28	71						71	22	14	36	
3		3	4	1	1	5	1	2	—	—	7	12	19						19	—	—	—	

TABLE II.—NO. OF CASES DISMISSED FROM OR DIED IN THE CORPORATION

DISEASES.	Not Stated.		-1		-3		-5		-1	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
<i>Diseases of the Nervous System—</i>										
Syphilis, including G.P.I. and tabes, ...	3	3	—	—	—	—	—	—	—	—
Cerebral hæmorrhage, embolism and thrombosis, ...	3	1	—	—	—	—	—	—	—	1
Epilepsy, ...	2	1	—	—	—	—	1	—	—	9
So-called functional diseases of central nervous system, e.g., neurasthenia, ...	1	—	—	—	—	—	—	—	—	—
Post-poliomyelitis anterior, ...	—	—	—	—	—	—	—	—	—	—
Post-encephalitis lethargica, ...	—	—	—	—	—	—	—	—	—	3
Insanity (all mental cases), ...	10	6	—	—	—	—	—	—	—	6
Idiocy, imbecility, feeble mindedness, ...	—	—	—	—	3	—	4	1	20	—
Meningitis (not C.S.F. or tubercular meningitis), ...	1	—	6	4	1	1	—	1	2	1
Other diseases of central nervous system, ...	—	—	—	—	—	—	—	—	—	1
Diseases of the peripheral nervous system, ...	—	—	—	—	—	—	—	—	—	—
Diseases of the eye, ...	—	1	2	1	3	4	6	3	9	—
Diseases of the throat and nose, excluding infection of or hypertrophy of tonsils and adenoids, ...	—	1	1	—	1	—	1	—	3	1
Diseases of the ear, ...	—	—	5	4	6	4	4	3	17	1
<i>Diseases of the Circulatory System—</i>										
alvular heart disease, ...	—	—	—	—	—	—	—	—	—	8
ther heart disease, ...	—	—	—	—	—	—	—	2	8	1
terio sclerosis, ...	—	—	—	—	—	—	—	—	—	—
Varicose veins and varicose ulceration of legs, ...	—	2	—	—	—	—	—	—	—	—
Other diseases, ...	—	—	—	—	—	—	—	—	—	—
<i>Diseases of Respiratory System—</i>										
Pneumonia—acute, ...	—	1	50	48	84	74	18	15	49	—
Bronchitis—acute, ...	2	—	61	50	69	40	12	19	52	—
Chronic bronchitis, including asthma and other complications, ...	1	—	—	—	1	—	—	—	14	—
Other diseases, ...	—	—	—	—	—	1	2	2	12	1
<i>Diseases of the Digestive System—</i>										
Hypertrophy of tonsils and adenoids, ...	—	—	—	—	4	5	3	6	747	74
Acute tonsillitis or pharyngitis, ...	—	1	—	1	5	—	5	3	19	—
Gastritis, ...	2	—	3	3	—	4	—	—	6	—
Gastric and duodenal ulcer, ...	—	—	—	—	—	—	—	—	—	—
Appendicitis, ...	1	—	—	—	—	—	—	—	7	—
Diarrhœa and enteritis, ...	—	—	117	106	32	37	2	9	—	—
Caries and other diseases of teeth and gums (dental cases), ...	1	—	—	—	—	—	2	—	21	—
Hernia of abdominal viscera, ...	—	—	11	1	10	1	1	1	1	—
Hæmorrhoids, ...	—	—	—	—	—	—	—	—	—	—
Other diseases, ...	—	4	2	2	3	—	3	1	9	—

GENERAL HOSPITALS DURING THE YEAR ENDED 31st DECEMBER, 1931.—*Continued.*

GROUPS.

	-45		-65		-75		+75		Total.		Grand	Deaths.		Totals.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.	M.	F.	Totals.
1	27	14	44	15	1	—	—	—	76	34	110	19	2	21
1	5	11	132	74	135	107	71	61	348	255	603	212	146	358
26	43	29	19	17	2	3	2	—	100	90	190	5	2	7
12	52	39	24	27	—	2	1	—	81	80	161	—	—	—
—	—	1	—	1	—	—	—	—	—	2	2	—	1	1
11	23	12	10	2	3	1	—	—	54	27	81	6	4	10
77	186	197	157	140	32	33	4	7	463	467	930	10	17	27
12	6	5	2	1	—	—	—	—	45	25	70	—	—	—
—	3	2	1	—	—	—	—	—	16	9	25	13	8	21
3	31	16	35	15	7	7	—	1	77	44	121	17	9	26
—	13	12	22	4	2	6	—	1	40	23	63	1	1	2
1	11	6	14	7	2	2	3	1	53	37	90	—	—	—
3	13	5	3	3	2	2	1	1	31	16	47	—	—	—
3	11	6	6	5	1	—	—	—	51	36	87	2	—	2
14	48	47	81	71	23	30	8	21	176	191	367	64	78	142
12	41	28	101	53	84	57	39	33	278	198	476	127	93	220
—	—	4	54	10	43	12	10	5	107	31	138	38	13	51
2	23	11	62	32	20	18	1	7	113	72	185	—	2	2
1	1	—	11	6	3	—	1	—	16	7	23	8	3	11
16	50	23	67	22	29	23	7	7	375	262	637	166	110	276
28	144	82	43	29	10	8	1	5	425	298	723	15	18	33
17	153	63	425	177	183	95	55	38	845	397	1,242	102	57	159
16	58	47	59	25	13	5	2	2	164	112	276	6	6	12
3	1	2	—	—	—	—	—	—	760	764	1,524	—	—	—
30	20	23	8	3	1	—	1	1	67	80	147	—	1	1
12	132	33	67	26	18	15	3	4	242	101	343	4	2	6
4	100	5	30	7	6	1	1	—	146	17	163	13	1	14
13	33	11	4	4	1	—	—	—	56	42	98	2	4	6
5	7	13	4	7	2	1	1	2	166	184	350	79	68	147
19	146	65	22	7	—	—	—	—	217	98	315	—	—	—
—	36	5	41	6	8	10	3	1	115	25	140	—	1	1
1	40	9	21	3	3	—	—	—	67	13	80	—	—	—
16	63	34	54	35	12	13	3	2	157	115	272	11	15	26

TABLE II.—NO. OF CASES DISMISSED FROM OR DIED IN THE CORPORATION

DISEASES.	Not Stated.		-1		-3		-5		-7	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
<i>Diseases of Genito-Urinary System—</i>										
Acute nephritis,	—	—	—	—	—	—	1	3	7	—
Chronic nephritis,	—	—	—	—	—	—	—	—	1	—
Prostatitis,	—	—	—	—	—	—	—	—	—	—
Stricture,	—	—	—	—	—	—	—	—	—	—
Diseases of the Female Generative Organs,	—	1	—	—	—	2	—	—	—	—
Other diseases of genito-urinary system,	—	—	19	5	7	4	5	4	10	—
<i>Pregnancy and disease connected with child bearing.</i>										
... ..	—	3	—	—	—	—	—	—	—	—
Born in hospital,	—	—	929	864	—	—	—	—	—	—
Diseases of the skin,	—	—	23	24	44	28	24	17	44	—
<i>Inflammation of cellular tissue including acute inflammation of lymphatic glands.</i>										
... ..	1	1	11	7	16	15	16	4	48	—
<i>Acquired deformities of bones, joints, etc.,</i>										
... ..	—	—	—	—	—	1	—	—	1	—
<i>Inflammation of bones, joints and organs of locomotion, excluding tuberculosis and rheumatism.</i>										
... ..	—	—	—	1	—	—	—	2	5	—
<i>Diseases, injuries and malformation of the newly born.</i>										
... ..	—	—	20	14	—	—	—	—	—	—
<i>Congenital malformations and deformities (under 5 years).</i>										
... ..	—	—	14	4	4	2	2	1	—	—
<i>Congenital malformations and deformities (over 5 years).</i>										
... ..	—	—	—	—	—	—	—	—	4	—
<i>Diseases peculiar to infancy and childhood.</i>										
... ..	—	—	60	35	19	10	3	3	7	—
Rickets and malnutrition,	—	—	5	3	11	9	6	5	10	—
<i>Accidents and injuries—fractures.</i>										
... ..	1	—	—	1	2	—	1	—	13	—
Others,	1	1	2	—	15	9	8	6	50	—
Poisoning,	—	—	—	—	—	—	—	—	—	—
<i>Alcoholism—</i>										
Including acute alcoholism, alcoholic gastritis, delirium tremens, alcoholic cirrhosis, etc.,	1	2	—	—	—	—	—	—	—	—
<i>Senility—</i>										
Old age, including senile dementia and senile gangrene,	—	—	—	—	—	—	—	—	—	—
<i>Debility following operations, childbirth and acute infections.</i>										
... ..	—	—	—	2	2	—	—	1	5	—
Disease ill-defined or not specified,	2	23	21	18	18	16	12	9	68	—
No appreciable disease,	—	—	92	72	47	60	44	40	139	—
	39	58	1,510	1,320	485	405	222	217	1,605	3

GENERAL HOSPITALS DURING THE YEAR ENDED 31st DECEMBER, 1931.—Continued.

GROUPS.

M.	F.	-15		-65		-75		+75		Total.		Grand Total.	Deaths.		
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		M.	F.	Total.
4	7	23	13	14	6	—	—	—	—	49	34	83	8	3	11
2	2	5	18	36	16	15	8	1	—	60	46	106	27	17	44
—	—	—	—	7	—	14	—	8	—	29	—	29	9	—	9
—	—	6	—	18	—	2	—	2	—	28	—	28	6	—	6
—	80	—	265	—	33	—	6	—	3	—	396	396	—	7	7
14	9	34	35	35	24	26	11	10	4	160	102	262	17	11	28
—	1,123	—	1,341	—	8	—	—	—	—	—	2,477	2,477	—	26	26
—	—	—	—	—	—	—	—	—	—	929	864	1,793	47	40	87
24	20	44	22	37	26	10	9	5	6	235	207	462	1	—	1
31	46	73	52	70	25	14	9	5	2	285	189	474	5	3	8
4	1	3	2	3	2	—	—	1	—	12	8	20	—	—	—
8	11	23	5	27	4	4	3	—	—	67	29	96	2	2	4
—	—	—	—	—	—	—	—	—	—	20	14	34	16	13	29
—	—	—	—	—	—	—	—	—	—	20	7	27	11	6	17
1	1	2	1	1	—	—	—	—	—	8	6	14	1	—	1
—	—	—	—	—	—	—	—	—	—	89	50	139	32	16	48
—	—	—	—	—	—	—	—	—	—	32	23	55	—	—	—
3	3	21	9	43	35	17	25	9	22	111	103	214	5	11	16
4	4	45	32	57	34	24	21	6	9	214	134	348	4	1	5
—	—	4	2	1	3	—	—	—	—	7	5	12	—	1	1
1	—	38	12	40	24	6	8	—	2	86	48	134	5	2	7
—	—	—	—	12	24	137	118	121	150	270	202	562	105	130	235
5	7	5	21	4	1	1	—	—	—	20	35	55	2	3	5
18	45	65	79	50	45	20	17	3	4	277	326	603	—	—	—
9	8	24	15	11	5	3	3	1	1	370	328	698	—	—	—
11	1,867	2,375	3,112	2,536	1,482	1,108	801	420	438	10,911	11,191	22,102	1,564	1,192	2,756

TABLE III. (a).—RETURN OF OPERATIONS PERFORMED IN GENERAL HOSPITALS FROM 16th MAY TO 31st DECEMBER, 1930.

	STOBHILL.			EASTERN DISTRICT.			WESTERN DISTRICT.			SOUTHERN GENERAL.			TOTALS.		
	No. of Operations.			No. of Operations.			No. of Operations.			No. of Operations.			No. of Operations.		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1. Operations on Brain,	7	—	—	—	—	—	—	—	—	—	—	—	7	—	—
2. Operations on Spinal Cord and Peripheral Nervous System,	5	6	—	—	—	1	—	—	—	—	—	—	5	6	1
3. Operations on Thorax,	7	2	—	2	—	1	—	—	—	—	—	—	9	2	1
4. Operations on Blood Vessels (including Varicose Veins and Hemorrhoids),	12	5	28	—	—	—	2	—	—	9	5	—	23	10	28
5. Operations on Digestive System—Abdominal Sections,	77	—	—	32	—	—	15	—	—	8	—	—	132	—	—
6. Herniotomy,	30	—	—	4	—	—	7	—	—	9	—	—	50	—	—
7. Operations on Genito-Urinary System,	68	—	24	14	2	—	1	—	1	5	11	187	88	13	212
8. Operations on Female Organs of Generation <i>i.e.</i> , Gynecological Operations,	122	—	32	48	—	—	64	—	—	4	—	—	238	—	32
9. Operations for Excision of Cancer of the Breast,	3	—	—	—	—	—	—	—	—	—	—	—	3	—	—
10. Operations for Insertion of Radium in Malignant Disease,	40	—	5	—	—	—	—	—	—	—	—	—	40	—	5
11. Operations on Bones, Joints and Organs of Locomotion,	71	—	—	—	—	—	17	—	—	3	1	—	91	1	—
12. Amputations of Arm, Hand, Leg or Foot,	8	—	—	1	—	—	1	—	—	—	—	—	10	—	—
13. Amputations of Fingers or Toes,	2	—	—	—	—	1	—	—	—	—	—	—	2	—	1
14. Incision for Acute Abscess, Cellulitis,	169	—	2	27	—	—	2	2	—	10	18	—	208	20	2
15. Operations on Skin and Subcutaneous Tissues and Superficial Lymphatic Glands,	30	14	5	4	—	—	5	—	—	6	1	13	45	15	18
16. Operations on Throat and Nose—Bronchoscopy, Oesophagoscopy, Laryngoscopy,	17	83	6	1	—	—	92	—	1	—	1	—	110	84	7
17. Tonsillectomy,	49	10	—	—	—	—	505	—	—	3	—	—	557	10	—
18. Operations on Eye,	29	34	2	—	—	—	—	—	—	1	—	—	29	35	2
19. Operations on Ear,	27	4	35	—	—	—	—	—	—	—	—	—	27	4	35
20. Operations on Teeth and Gums,	247	1	—	43	—	—	15	—	—	5	263	6	310	264	6
21. Obstetric Operations,	83	—	—	10	—	—	13	—	10	16	—	17	122	—	27
	1,103	159	139	186	2	3	739	2	12	78	301	223	2,106	464	377

Note. A With general or spinal anæsthetic. B With general anæsthetic. C With nitrous oxide and oxygen.

TO 31st DECEMBER, 1931.

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	STORHILL.			EASTERN DISTRICT.			WESTERN DISTRICT.			SOUTHERN GENERAL.			TOTALS.		
	No. of Operations.			No. of Operations.			No. of Operations.			No. of Operations.			No. of Operations.		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1. Operations on Brain,	14	28	—	—	—	—	1	—	—	—	—	—	15	28	—
2. Operations on Spinal Cord and Peripheral Nervous System,	12	11	—	—	—	—	—	—	—	2	1	—	14	12	—
3. Operations on Thorax,	12	3	—	2	1	—	2	—	—	2	1	—	18	5	—
4. Operations on Blood Vessels (including Varicose Veins and Hemorrhoids),	76	—	25	8	—	—	9	—	5	8	—	—	101	—	30
5. Operations on Digestive System—Abdominal Sections,	135	1	—	67	1	1	32	1	—	47	—	4	281	3	5
6. Herniotomy,	56	—	—	13	—	—	11	—	—	20	—	—	100	—	—
7. Operations on Genito-Urinary System,	122	—	31	17	2	1	22	1	4	24	3	142	185	6	178
8. Operations on Female Organs of Generation, <i>i.e.</i> , Gynaecological Operations,	212	—	14	155	2	—	140	—	4	47	—	—	554	2	18
9. Operations for Excision of Cancer of the Breast,	5	—	—	—	—	—	1	—	—	4	—	—	10	—	—
10. Operations for Insertion of Radium in Malignant Disease,	24	—	6	—	—	—	—	—	—	—	—	—	24	—	6
11. Operations on Bones, Joints and Organs of Locomotion,	88	—	10	13	2	1	16	—	—	21	—	4	138	2	15
12. Amputations of Arm, Hand, Leg or Foot,	12	—	—	5	—	—	7	—	—	6	—	—	30	—	—
13. Amputations of Fingers or Toes,	4	—	—	2	1	—	—	—	—	—	—	—	6	1	—
14. Incision for Acute Abscess, Cellulitis,	290	—	—	41	3	—	35	—	6	51	50	5	417	53	11
15. Operations on Skin and Subcutaneous Tissues and Superficial Lymphatic Glands,	30	—	—	6	—	2	3	—	—	16	13	—	55	13	2
16. Operations on Throat and Nose (Bronchoscopy, Oesophagoscopy, Tonsillectomy),	108	170	27	—	—	—	1,679	—	—	22	2	—	1,809	172	27
17. Operations on Eye,	40	96	29	—	—	—	—	—	—	—	—	—	40	96	29
18. Operations on Ear,	84	19	32	—	—	—	12	—	—	3	—	—	99	19	32
19. Operations on Teeth and Gums,	456	—	—	201	—	—	55	—	—	28	454	—	740	454	—
20. Obstetric Operations,	14	—	—	11	—	—	8	—	—	18	—	15	51	—	15
	1,794	328	174	541	12	5	2,033	2	19	319	524	170	4,687	866	368

Note.—A With general or spinal anaesthetic. B With local anaesthetic. C Without anaesthetic.

DIABETES—SUPPLY OF INSULIN.

Supplies of insulin are given to persons whose circumstances warrant such assistance and who are not already provided for under the National Insurance Scheme or the Poor Law.

There were 66 new applicants during the year; 55 of these were married women or widows, 4, while of insurable age, were outwith the National Insurance Scheme, 1 was under 16 years of age, and 6 were patients in Corporation hospitals.

Cases on Roll at 31st December, 1930,	105
Cases applying for first time during 1931,	66
Cases who discontinued treatment prior to 31st December, 1930, but re-applied during 1931,	11
	<hr/> 77
	182
Cases who died during 1931,	18
Cases who discontinued supply during 1931,	41
	<hr/> 59
Leaving Cases on Roll at 31st December, 1931,	123

The 41 cases who discontinued the treatment were visited and inquiries made as to the reason. These may be summarised as follows:

Removed beyond City Boundary,	1
Discontinued on Medical Advice,	13
Discontinued of own accord,	12
To get supplies from Public Assistance Department,	3
Hospital Cases now dismissed,	5
Others,	7
	<hr/> 41

The daily dosage of the cases on the roll at 31st December, 1931, is as follows:—

No. of Cases.	Daily Amount.
—	Under 5 units.
17	5 to 14 units.
35	15 to 24 units.
31	25 to 34 units.
10	35 to 44 units.
9	45 to 54 units.
9	55 units and over.
6	Receiving double strength insulin.
6	Not stated.
<hr/> 123	

During the year 10,768 phials of ordinary strength insulin (100 units per 5 c.c.s.) and 444 phials of double strength (200 units per 5 c.c.s.) and 35 phials of extra double strength (400 units per 5 c.c.s.) were issued, the total cost being £779 5s. 4d. The corresponding figures for 1930 were 9,084 phials at a cost of £624.

PART IV

MENTAL HOSPITALS.

Following the transfer of the Mental Hospitals to the Corporation, questions of accommodation for certified patients early came under consideration owing to the overcrowded state of these institutions. In accordance with instructions the following report, dated 14th February, 1931, was submitted:—

" This report has been prepared in accordance with the following remits by the Sub-Committee on Mental Services:—(a) remit, of 13th August, 1930, following consideration of certain references to the difficulty of providing accommodation for patients under the Glasgow Authority made by one of the Commissioners of the General Board of Control in a report on Woodilee Mental Hospital, 9th-10th July, 1930; (b) remit, of 8th September last, following a report on Hawkhead Mental Hospital by one of the Commissioners, dated 7th-8th August, in which reference is made to the general pressure upon accommodation which is still much in evidence in the main building, to overcrowding in the dormitories, and to deficiency in day room accommodation for certain types of patients; (c) remit, of 13th October, of a similar report of 9th-10th September on Gartloch Mental Hospital, referring to difficulties of administration resulting from continuous demands on accommodation. These remits of the Sub-Committee raise the whole question of overcrowding in the mental hospitals, along with deficiency of accommodation generally for the treatment of mental patients under the Lunacy Acts. The difficulties under which these institutions are working are of long duration.

As regards Woodilee, the periodic reports of the Commissioners constantly referred to overcrowding, especially in the hospital portion of the institution. Some extracts relating to previous years may be quoted:—

November, 1914.—" The hospitals were taxed to the uttermost capacity."

April, 1915.—" Constant pressure on available accommodation."

August, 1917.—" Portions of wards not originally meant to be used for hospital wards, and not well suited to the purpose, have had to be utilised."

August, 1919.—" There are difficulties connected with the administration and efficient medical supervision of the patients that call for careful reconsideration of the structural scheme of this asylum. Existing accommodation for observation cases is not enough, and is not well placed."

This and subsequent reports during 1920 deal fully with the administrative difficulties due mainly to the large and increasing number of cases for whom there is no suitable or adequate hospital

accommodation, and to the fact that "no part of the original asylum or of the extensive additions made to it, supply suitable accommodation according to modern ideas."

During 1920 the situation was to some extent relieved by the transfer of patients from Woodilee and Gartloch to other institutions throughout Scotland, and also by certain re-arrangements of accommodation within the hospitals themselves. To quote again from the Commissioners' reports:—

March, 1924.—"The hospital wards are still very crowded, and entail much anxiety and watchfulness on the part of the nursing and medical staffs."

February, 1925.—"No fewer than 259 patients were confined to bed in the hospitals, and the overflow from the hospitals into the other wards of the institutions quite unfitted for hospital nursing and work, has exceeded the limit of safety."

February, 1928.—"Considering the large number of patients requiring hospital care in addition to those already filling the hospital and hospital wards, the circumstances which have called for the utilisation of day rooms as hospital wards . . . cannot be regarded as meeting the permanent needs of the district, and if this unusual state of affairs were confined to the one institution the problem of dealing with the mental health of the district would be easy, but all the institutions for mental affections and mental defects are crowded, and many mental patients belonging to Glasgow are housed in a number of Scottish asylums."

Hawkhead Mental Hospital has had a similar experience. A report by one of the Commissioners in 1925 refers to the necessity for keeping in view the question of accommodation, and to the fact that some of the normal accommodation has had to be devoted to the use of staff. The report goes on to say:—

"In considering the question of accommodation, apart from the presence of typhoid, attention is drawn to the excellent principle carried out by the Medical Officers, whereby every patient with a chance of recovery remains in hospital, so that he or she may be discharged from there without having to be housed at any time in the main asylum. It is becoming increasingly difficult to carry this out and to provide at the same time the accommodation necessary for new patients, for those requiring constant observation, and for the sick and infirm requiring bed treatment. The dormitories generally have more than the ideal complement of beds, but it is noted that the beds on the verandahs on both sides of the hospital are now included in the permanent accommodation."

"These facts suggest that, in addition to any buildings contemplated in direct relation to the outbreak of enteric, some measures to meet the increase of population are now due for consideration, and it seems desirable that any buildings considered necessary in that direction should be associated with the hospitals, say, in the form of annexes for convalescents."

The report on Hawkhead, of 7th-8th August, 1930, by the Commissioner contains the following:—

"The total accommodation in the asylum has recently been increased by about 40 beds, the number in the newly opened solarium . . . It was not expected to relieve the general pressure upon accommodation which is still much in evidence in the main building. Previous reference has been made to the overcrowding in the dormitories. In No. 2 division of the male side there was very considerable restlessness in the day room at the visit, largely due to the declamations of several very deluded patients. It is unfortunate that for this type of patient the accommodation is only able to afford 26 square feet of floor space per patient, the desirable minimum for all day rooms having hitherto been reckoned at 32 square feet."

As regards Gartloch Mental Hospital, the Commissioner's report, of 9th-10th September, 1930, states that "the difficulties of administration continue to be great in face of the continuous demands on hospital accommodation." An extension of the wards for senile and infirm patients was effected four years ago. "The pressure, which was thus alleviated, has again become acute." It was noted during the visit "that about two-thirds of the number of beds in the reception wards were occupied by more or less chronic infirm cases, a condition of affairs which is not conducive to the interests of newly admitted cases."

The above considerations show that the present difficulties as regards accommodation have accumulated over many years. To meet the demand, extensions have been made from time to time to each of the three mental hospitals—Woodilee, Gartloch and Hawkhead. Concurrently with this, resort has been had, in increasing degree to boarding out patients in various other institutions throughout Scotland. It is apparent that the demand is greatest and the accommodation most deficient for such patients as require treatment in hospital and observation wards, and that overcrowding occurs to the greatest extent in these portions of each institution.

The increasing numbers admitted to each of the mental hospitals have entailed a proportionate increase of nursing and domestic staffs. As a result of this and also of the reduction in the hours of duty given effect to some years ago, the accommodation for the female staff has become severely overtaxed. In Hawkhead, rooms for patients have had to be devoted to sleeping quarters for nurses—a very unsatisfactory arrangement. Thus overcrowding affects both patients and staff.

Present Position in the Mental Hospitals.—As regards patients, an enquiry has been made into the volume of overcrowding in excess of the standards laid down by the General Board of Control, which have been fixed on the moderate basis of 90 square feet per patient for hospital wards, and 60 square feet in dormitories.

Applying these standards to the patients at present under treatment, it is estimated that the three mental hospitals have together approximately 268 patients above their appropriate number. In Woodilee the hospital wards have 111 patients in excess of their allotted number of 504 patients on the basis of 90 square feet per bed. Gartloch similarly has 42 patients in excess. In Hawkhead the overcrowding is general, and amounts to 115 patients. The details are as follows:—

		Males.	Females.	Total.	
Woodilee,	...	54	57	111	} Overcrowding in hospital portions. 115 General overcrowding.
Gartloch,	...	20	22	42	
Hawkhead,	...	84	31	115	
		<hr/>	<hr/>	<hr/>	
		158	110	268	
		<hr/>	<hr/>	<hr/>	

These figures of overcrowding do not take into account the conversion of day rooms into dormitories, which has had to be resorted to, especially in Woodilee, in order to meet the pressure on beds, nor do they take into account overcrowding which prevails to some extent in other portions of this institution; indeed, the number of patients in excess of the available day room space (30 square feet per patient) would be greater than the above figures reveal. In Woodilee, which is the oldest institution, dating from 1875, some of the accommodation is not well adapted for patients, and owing to lack of ventilation, a standard of 90 square feet is, under the circumstances, rather low. The causes which have led to this high degree of overcrowding are apparent from the extracts already given from the reports of the Commissioners of the General Board of Control, and are due mainly to increasing admission of patients who require accommodation of the hospital type.

It will be observed that the overcrowding occurs in the hospital and observation portions of the three institutions, a fact which is emphasised in the reports of the Commissioners. In the construction of a mental institution in relation to function, it is important to observe the distinction made between hospital, observation, and ordinary asylum accommodation. Hospital beds are required for patients on admission, aged and infirm persons, chronic invalids, patients requiring special medical attention, and intercurrent illnesses among patients in the asylum proper. Observation beds are required for those on whom a special watch has to be maintained, such as homicidal, suicidal, and difficult cases in varying degree. It is also a feature of modern asylum practice to retain in hospital every patient with a chance of recovery, so that he or she may be discharged from there without having to be housed in the main asylum. Before transference to the main asylum, the Medical Superintendent must be thoroughly satisfied that strict observation is not required. As regards a particular patient, this may be a difficult decision to make. It is therefore easy to explain why the hospital and observation side may be subject to overcrowding, according to the type of patient admitted and to the rate at which admissions take place. This also explains why the Commissioners constantly refer to deficiency of accommodation for hospital and observation beds. The institutions as at present constructed and staffed do not permit of any degree of elasticity. Their effective accommodation is chronically and seriously deficient, apart altogether from questions of boarding out and the disposal of quiet, inoffensive types.

Boarding Out.—With regard to the system of boarding out quiet, inoffensive patients with guardians, the policy to be pursued and the relief to be obtained as regards accommodation by increasing this procedure, are not easy to determine, owing to the varying and conflicting views held on this question. For instance, in the report on Woodilee of 9th-10th July, 1930, the following remarks occur:—"The Deputy Commissioners of the Board frequently report the desire of the guardians to have vacancies in their licensed number filled, and

doubtless many new guardians could be found. It is true that the pressure on the asylum accommodation in respect of the more chronic cases is due to bedridden cases in a great measure. The accumulation of senile cases here, as in other institutions, constitutes a severe tax upon the accommodation. When the intensive nature of the nursing which these patients require is properly recognised, it will be seen that adequate care could not be provided for them, under existing circumstances, anywhere else. If, however, the principal function of the mental hospital, namely, the treatment of acute and recoverable cases, is not to be seriously impeded, some further consideration must be given to this alternative method of caring for able-bodied, quiet, and chronic cases, and a knowledge of the situation reveals nothing to indicate that the potentialities of the boarding out system are in any way exhausted."

On the other hand, according to the last Annual Report of the General Board of Control, there has been a considerable shrinkage in the numbers boarded out in recent years. For instance, the numbers residing with guardians were 498 in 1921 and 324 in 1930. This whole question is one which requires to be fully explored from several aspects, including suitability of patients and guardians and consent of relatives, and should it be found feasible to increase this procedure some relief to the asylum position may thereby be obtained. It must be pointed out that patients suitable for boarding out are taken from the non-hospital portions of the mental institutions which are, as has been explained, subject to least overcrowding. It is necessary, however, to emphasise clearly that whatever policy be adopted, wholesale boarding out as a means of relieving overcrowding and adding to the effective accommodation in mental institutions is out of the question.

Patients Accommodated in other Institutions.—As regards institutions in Lanarkshire, the Corporation has agreed to transfer its joint interest in Kirklands (133 beds) and in Hartwood and Birkwood (a few beds) to the County of Lanark, on the understanding that "for a period of seven years, or such further period as may be arranged, the Corporation will be entitled to the use of 139 beds in the institutions of the County" (2nd May, 1930—Print No. 15, page 1503).

The Corporation, in respect of its interest in Larbert Mental Hospital (estimated at 30 beds), has agreed to accept a payment of £4,000 in respect of its share in this institution. As regards Dykebar, negotiations are proceeding with the County of Renfrew on the basis of the estimate of the Director of Public Assistance that Glasgow is entitled to the major share of this institution (216 beds as against 190 belonging to the County). The Corporation also falls heir to an arrangement made by the Glasgow District Board of Control to retain 100 beds in Lochgilphead Mental Hospital for a period of ten years commencing now. In addition, patients are sent from Glasgow to some eighteen other mental hospitals throughout Scotland. For example, there are in Riccarton 95, in Fife and Kinross Mental Hospital 40, in Haddington 97, in Hartwood 45 patients, and so on. The total patients thus disposed of is variable, being 394 at present.

Total Accommodation for, and Disposal of, Patients.—The general position may be expressed as follows:—

Local Authority Institutions.		Number of Patients.	
Woodilee Mental Hospital,	...	1,252	
Hawkhead Mental Hospital,	...	865	
Gartloch Mental Hospital,	...	810	
*Southern General Hospital (Certified Portion),	...	227	
		3,154	
* Other Institutions.			Existing or Prospective Arrangements.
Kirklands Mental Hospital,	...	138	139 beds for seven years (or as may be further arranged).
Dykebar Mental Hospital,	...	164	216 beds claimed on basis of Mr. Reynard's estimate.
Lochgilphead Mental Hospital,	...	79	100 beds for ten years.
Other Mental Hospitals,	...	394	As accommodation is available.
		775	
Total patients in institutions,		3,929	
Observation ward accommodation,	...	188	
*Boarded out with Guardians,	...	324	

* Under administration of Public Assistance Committee.

Most of the mental hospitals in which patients from the city are being received are themselves full or crowded, and no dependence can be placed on other accommodation becoming available in this direction; indeed, it is more than likely that accommodation available for Glasgow patients in other hospitals throughout Scotland will shrink rather than expand. In this statement I am expressing the view of the General Board of Control. Consequently, the position to be faced involves the question of new construction.

The overcrowding in the Glasgow Hospitals has not lessened the urgency of the demand for beds, and efforts to meet it amount to a scramble for accommodation among the institutions throughout Scotland. The difficulty at the moment is very great.

The General Question of Accommodation for Mental Disease.—In certain directions, the completion of Lennox Castle for mental defectives will materially affect the situation. It will, for instance, liberate Stoneyetts, with 345 beds, for other purposes. If, as has been proposed, this institution were devoted to the care of senile mental patients under suitable nursing arrangements, this procedure would sensibly relieve the accommodation in the mental hospitals, besides being very much in the interests of these patients themselves. Part of the overcrowding in the mental hospitals has been due to the accumulation of aged patients, who constitute a special problem which is becoming increasingly urgent. As regards many of these, their mental condition is a minor consideration, and they tend to block the hospital accommodation of the mental institutions, to which under present circumstances they must of necessity be admitted. The Medical

Superintendents of Woodilee, Hawkhead, and Gartloch estimate that approximately 225 such patients could be transferred to another institution under the care of nurses with mental training. This figure comprises 79 males and 146 females, made up as follows:—From Woodilee, 140; from Hawkhead, 18; and from Gartloch, 67. These may be regarded as conservative figures. Stoneyetts would also be available for similar patients from other public institutions. The question of formal certification under the Lunacy Acts, as a condition of admission, would require later consideration.

It may also be possible to transfer to Lennox Castle a number of mental defectives from Woodilee and Gartloch, and also a few from Hawkhead. This number amounts approximately to 130 patients (*i.e.*, 80 from Woodilee and 50 from Gartloch), provided these are considered suitable for admission to Lennox Castle. It should be pointed out, however, that the removal of these will not to any important extent relieve the deficiency of hospital and observation beds.

In considering the question of accommodation, the natural increase of the population of mental institutions should be kept in mind. This increase depends on three main factors, namely, increase of population, increasing longevity of the population, and the lessened death-rate in mental hospitals, apart altogether from any question of the actual incidence of mental disease. Among these three factors, the one which appears to be affecting the position most of all is the fact that a larger proportion of the population are now surviving to the age period when senile mental affections are common. Patients of this kind account for much of the congestion in the mental hospitals. Again, the lessened death-rate in institutions, chiefly due to the decline in phthisis and in the spread of other affections, has very materially reduced the turnover of patients and added to the asylum population.

It is extremely difficult to assess the effect of these movements, and to estimate their relationship to future requirements as regards accommodation. Experience during the past ten years, based upon admissions and discharges, indicates that 50 patients per annum were added to the numbers to be accommodated from the former Parishes of Glasgow and Govan, according to data furnished by the General Board of Control. If this rate of increase in the institutional population continues for the next ten years, it is obvious that 500 additional beds will be required. Whether this be so or not, the factors on which such an estimate is based are difficult to determine statistically, and my impression is that the movements which have led to the increase in asylum population at the above rate will not continue to operate quite to the same extent in the future. For instance, it is unlikely that the death-rate will fall much lower than it is at present. On the other hand, the influence of the factor of increasing longevity of the population is likely to be maintained. It is certain, however, that a considerable proportion of added accommodation under these heads will require to be budgeted for.

Taking a reasonably long view, and summing up the various factors which enter into the question of accommodation, the position is somewhat as follows:—To relieve existing overcrowding in the mental hospitals, there would be required 268 beds on a conservative estimate. Reckoning on a continuation of the demand increasing at the rate of 50 per annum, this would amount to 500 beds at the end of ten years. For the reasons above given, I am doubtful whether the rate of increase of the institutional population will be maintained at this level. Although an accurate forecast is impossible, an estimated figure in the region of 350 beds would not be unreasonable as a working basis. As has been explained, the available accommodation in other institutions throughout Scotland is likely to shrink, and it will in all probability be necessary to remove patients from certain of these institutions, or at any rate to cease sending patients to them should the accommodation be wholly required for their own purposes. This is a factor which is difficult to estimate, and could only be settled definitely by negotiation. Apart from Kirklands, Dykebar, and Lochgilphhead, there are at present some 394 beds to which these considerations apply. Presuming that this amount of accommodation will require to be provided some time in the future by Glasgow for its own patients, this number would fall to be withdrawn from other institutions. Thus, the position of the mental hospitals of Scotland, in relation to their own needs, enters into the local problem.

The question of the certified beds at the Southern General Hospital should also be considered. The number of patients under treatment is 227, being the overflow from Hawkhead, who belong to the chronic, incurable, and mostly ambulant types, unsuitable for boarding out. Leaving these out of consideration at the moment, the total deficiency amounts to approximately 1,000 beds, as follows:—

Accommodation required to relieve overcrowding,	268	beds.
Estimated increase over ten years at rate of 35		
per annum, say,	350	„
Boarded out in other mental hospitals in Scotland,	394	„
	<hr/>	
Maximum requirements, ...	1,012	„
	<hr/>	

Against this estimated deficiency there should be placed 345 beds in Stoneyetts for aged, mental patients, an additional 30 beds at Lochgilphhead available for ten years, and a probable 130 beds in the more chronic portions of the mental hospitals set free by the transference of mental defectives to Lennox Castle. An additional 50 observation beds are being provided at Stobhill Hospital. These together make a total of 555 beds. As a further, though remote, possibility, 50 beds in Dykebar may become available. If these be added, the total becomes 605 beds. Thus, if these estimates are reasonably accurate, the total deficiency is likely to be in the region of 400 beds. This leaves out of account any question of providing alternative accommodation for the 227 patients in the Southern General Hospital

In the above statement, I have endeavoured to review the difficult problem of mental hospital accommodation in its immediate and future aspects, so as to enable the question of a consistent policy to be determined. This review does not take into account the problem of mental defect either in adults or as regards the ineducable mentally defective child. The needs of the former will be met by the institution under construction at Lennox Castle. It should be pointed out that much the greatest part of the accommodation referred to as likely to become available will not materialise until Lennox Castle is actually functioning, and that relief from the present difficult situation will not accrue until the above changes can be given effect to. Even then they will not meet the situation. This raises the question of the immediate steps which might be taken to remedy the present deficiency and which might fit in with the evolution of mental institution accommodation as outlined.

There are two main alternative policies—(a) To proceed with the construction of a new institution, or (b) to expand existing institutions. It appears to me that before contemplating the first alternative the latter should be carefully considered. With regard to Woodilee, this institution may be regarded as having reached its maximum size for convenient administration. In the case of Hawkhead and Gartloch, however, the addition of 200 beds to each of these institutions might be a feasible and economical procedure. This would bring each of them up to approximately 1,000 beds.

Staff Accommodation.—In the three mental hospitals, increases of nursing staff to meet the reduced hours of work and the increased numbers of patients have led to crowding in the quarters for female staff. At Woodilee the nurses' home, which was opened in 1904 for 110 female staff, now accommodates 166, *i.e.*, 130 nurses and 36 maids of whom only 58 nurses and two maids occupy single rooms. The board and staff dining rooms have been converted into sleeping quarters to meet the demand for accommodation. At Hawkhead the nurses' home is small, and was opened in 1909 for 20 nurses. In addition, 20 rooms intended for patients are now occupied by nurses, while additional nurses' rooms are scattered throughout the institution. Many of these rooms occupied by nurses enter directly off the patients' sleeping quarters, an unsatisfactory arrangement. The nurses' sitting room in the home has also been converted into a dormitory with five beds. At Gartloch three sitting rooms have been converted into dormitories, two for nurses and three for maids. In these two latter institutions, a number of nurses and maids are housed two in a room. Improved accommodation for staff in the mental hospitals should therefore be considered, along with the question of increased provision for patients.

Conclusions.—

- (1) Owing to increasing demand for accommodation over a number of years, the mental hospitals are now seriously overcrowded, especially in their hospital and observation wards.
- (2) The accommodation for female staff, *i.e.*, nurses and maids, has become overcrowded and deficient.
- (3) Available accommodation elsewhere in Scotland has reached saturation point, and will contract rather than expand.
- (4) The problem of additional mental hospital accommodation has become acute, and requires immediate consideration.
- (5) From a review of the whole position, in so far as data are available, the shortage of accommodation may be estimated at about 400 beds over the next ten years, after allowing for the relief to be obtained when Lennox Castle is completed. The question of alternative accommodation for the 227 patients in the Southern General Hospital has not been taken into account in this estimate.
- (6) To meet these difficulties over a reasonable length of time, consideration should first be given to the extension of Hawkhead and Gartloch as a more economical alternative to the erection of a new institution.

It is accordingly recommended that—

- (1) The policy as regards new provision might take the form of extension of Hawkhead and Gartloch by 200 beds each in preference to the construction of a new mental hospital. These extensions, if carried out, should be of hospital or convalescent type, in accordance with modern requirements.
- (2) The question of improving and augmenting the staff accommodation at the three institutions should be considered at the same time.
- (3) As the immediate and future position as regards mental hospital accommodation for Glasgow depends very largely on the accommodation available in other similar institutions in Scotland, this factor might be made the subject of discussion with the General Board of Control. It will also be advisable to discuss with the Board the general considerations contained in this report as to future policy and requirements."

A. S. M. MACGREGOR.

On 1st May, 1931, a conference was held in Edinburgh between members of the Corporation and the Board of Control to discuss the whole situation, and it was generally agreed that additional accommodation was necessary for recent acute cases, and further that provision for these should take the form of extensions by about 200 beds to Hawkhead and Gartloch Mental Hospitals.

To make the position more clear, a further report was submitted to the Corporation on 9th October, 1931, in which attention was particularly directed to the shortage of accommodation for acute cases throughout the country generally and various aspects of the problem were more fully discussed. The terms of this report were as follows:—

“The question of accommodation in mental hospitals was fully reviewed in the report, dated 14th February, considered at a special meeting of the Sub-Committee on Mental Services (Print No. 16, page 1920) on 15th May. On 7th August, the Sub-Committee instructed that a further report be prepared with special reference to general overcrowding and lack of accommodation for hospital cases in the mental institutions. The following report amplifies and expands the information already given, and should be considered along with that previously submitted.

The Position in Scottish Asylums.—In the report of 14th February, the view was expressed that most of the mental hospitals in which patients from the city are being received are themselves full or crowded and that no dependence could be placed on other accommodation becoming available in this direction. Some misunderstanding has arisen as to the situation in the Scottish asylums, and the following explanation is accordingly made.

In the Report of the General Board of Control for 1929, the bed accommodation of the various Royal and District Asylums of Scotland, as at 1st January, 1930, is given as 18,174 beds, and the number of private and pauper lunatics in these asylums is stated to be 16,214. The inference is that there were in Scotland 1,960 empty beds, of which about 1,200 were in the Royal Asylums. This, however, does not purport to give, and does not include, the additional voluntary patients who are occupying beds in these institutions. In response to a circular letter asking for certain information, replies were received from all institutions except two which have been unable in recent years to take patients from this area. The returns thus received show that there are 905 voluntary patients in the Scottish asylums, excepting the two above mentioned, and apart from a few in Corporation Institutions.

It is understood that the Seventeenth Annual Report of the Board of Control (not yet published) will show that the total accommodation in the Scottish Royal, District, Private and Parochial Asylums, as at 1st January, 1931, amounts to 18,823 beds, the number of certified patients being 16,814, and the voluntary uncertified patients 972, making a total of 17,786 patients. There would thus appear to have

been at that date a surplus of accommodation amounting to 1,037 beds, but this figure has to be considered in the light of the statement as to general overcrowding in the asylums of Scotland made by the Board of Control at the interview with the deputation from the Mental Services Sub-Committee on 1st May, and of the following note appended to the Board's returns of accommodation for January, 1931, as above given, "as regards the 'accommodation,' that is based upon returns received from the superintendents of asylums and refers to the number of beds. The actual accommodation, however, based upon what is regarded as desirable floor space per patient is very much less. The total dormitory accommodation, in Royal, District, and Parochial Asylums based upon the floor space referred to works out at approximately 17,453." It is apparent, therefore, that on a floor space basis these institutions contain 333 patients in excess of their accommodation.

In the circular letter to institutions throughout Scotland, the following questions were asked (1) the total number of beds in the institution; (2) the number of those at present occupied; (3) the number at present occupied by voluntary uncertified patients; and (4) the number of beds available for recent acute cases. The replies showed that the accommodation available for recent acute cases amounted to only 63 beds in the various district asylums, while there were in the Royal Asylums 334 vacancies. Of the latter, 236 beds are in the Crichton Royal Institution, Dumfries, and the medical superintendent states that he is not prepared to afford any accommodation to rate-aided patients from the city. There are 57 available beds in the West House Department of the Royal Hospital, Edinburgh, but the authorities there are not yet in a position to state whether they could receive patients from Glasgow. The remaining available accommodation in the Royal Asylums is definitely stated to be for private patients.

It will be observed that the 63 vacant beds in the District Asylums for acute cases are spread over 16 different institutions, which must consider the needs of their own areas.

The medical superintendents in replying to the questions asked, draw attention to the erroneous conclusions which might be drawn from the figures in the Annual Report of the Board of Control, and point out that the effective accommodation, especially for recent acute cases, is in fact insufficient or overcrowded. The expedients which have had to be resorted to by the Glasgow mental hospitals have apparently been paralleled in other institutions throughout Scotland, *i.e.*, day room accommodation and recreation rooms have been sacrificed to provide additional bed accommodation, and it has been necessary for patients to be drafted prematurely from the admission wards to other less suitable parts of the institution. As regards the Glasgow mental hospitals, these difficulties were fully discussed in the report of 14th February to the Sub-Committee. It is necessary to repeat that asylum accommodation is of three distinct types—(1) for the reception of acute cases, and for the treatment of recoverable cases; (2) for the continued treatment and close observation of the case that is not

likely to recover, and for the hospital treatment of the invalid and infirm patient; and (3) the asylum proper, *i.e.*, for the treatment of the ambulatory insane person, only some of whom require constant observation. Institutions in the past have been built on this clear conception, and their structure has not readily permitted of any elasticity or adaptation. For instance, there may be in any institution vacant beds on the asylum side, while the reception or hospital sides may be overcrowded; internal adaptation to permit of transference between these two groups would be unsatisfactory, or even impossible. This fact is the crucial point in the question of asylum accommodation and should be clearly understood.

It has been urged that the ex-service men whose mental derangement is due to war service should be transferred elsewhere. There are about 120 of these in the three Corporation mental hospitals, most of whom have relatives or friends resident in Glasgow, and their removal, even if accommodation could be found for them, would entail distinct hardship for both relatives and patients. In any case, these patients are in the great majority of instances of the chronic ambulatory type occupying accommodation in the asylum portions of the institutions, only a comparatively small number requiring day and night observation. Consequently, their removal would not to any material extent relieve an equivalent number of beds for acute cases requiring accommodation of the hospital type.

As regards relief of patients to the care of relatives, the medical superintendents do this as freely as possible, and point out that they are taking increasing risks in this direction. Exceptions are, of course, made where patients have suicidal or homicidal tendencies, or where it is obvious that supervision at home would be quite inefficient.

As regards boarding out, the medical superintendents from their experience are agreed that this principle is a sound one for certain cases. They are of opinion, however, that this measure should only be adopted for the quiet chronic patient for whom there is little hope of complete recovery. The patient who requires skilled medical care must of necessity remain in the institution, while it is obvious that the female patient of child-bearing age should not be boarded out. There are in the various institutions a number of old people who could be boarded out if suitable guardians were obtained, but these are patients who could not do any useful work although able to look after themselves to some extent. Apart from these, the patients most suitable for boarding out are those who are performing useful work in the institutions and on the farms, an aspect of asylum treatment which is much commended by the General Board of Control. It must be apparent, therefore, that wholesale boarding out as a means of relieving overcrowding and providing alternative accommodation for the recent acute cases is not the solution of the problem of asylum accommodation.

In my report of 14th February, it was pointed out that the number of persons under institutional care had been continuing to increase for

many years and would continue to do so for various reasons. On the experience of the past ten years this increase was estimated at 50 per annum. A recent circular, issued by the Board of Control for England, estimates this general increase at 1.98 per cent. of the cases in public mental hospitals in England. This figure applied to Glasgow would give a somewhat higher rate of increase than the 50 per annum estimated above, and corroborates the most important factor in the situation, *i.e.*, that continued increasing pressure at this rate has been, and is being, made on the accommodation of mental hospitals, leading to the degree of overcrowding that now exists. I may further add that in my original estimate of accommodation required to meet this increase, I adopted a more conservative figure of 35 per annum over the next ten years, *i.e.*, 350 beds rather than 500 beds.

The general position as regards accommodation remains much as described in the previous report. Lochgilphead Asylum now has 130 Glasgow patients, in place of 79, and is overcrowded, while some 14 beds at Woodilee and 25 at Gartloch have been added to the accommodation for acute cases. In spite of this, the difficulty of overcrowding in the hospital and observation wards remains acute. As regards Dykebar, the Medical Officers of Health for the County of Renfrew and for the Burghs of Paisley and Greenock have recommended that this institution be transferred to Glasgow, but this is contingent upon the approval of the various local authorities and the provision of equivalent accommodation (200 beds) elsewhere.

The above considerations will enable the Sub-committee to look further into some of the aspects of the problem of accommodation. Having regard to all the circumstances and to this further review of the whole position, the conclusions and recommendations of the report of 14th February still apply."

A remit was made by the Committee on Mental Services to report on the advisability of establishing a special hospital for nervous diseases with a view to the avoidance of the stigma of certification, and also with the idea of treating nervous and mental cases in a hospital altogether apart from the ordinary sick poor, who are treated in municipal general hospitals. As this report deals with the functions and work of the mental observation wards and correlates the two preceding reports, it is also quoted in full.

The Sub-Committee on Mental Services on 5th June remitted to the Medical Officer of Health to report on the advisability of establishing a hospital for nervous diseases in Glasgow. The following is the report :—

"The term 'nervous disease' is wide in its scope, covering a range of conditions from the mildest form of nervous breakdown to the most advanced degenerative changes in the nervous system, and including all the many forms of mental disease, mental deficiency and epilepsy. It is obviously impossible to consider one hospital for the treatment of all of these affections. For instance, confirmed cases of insanity of the more chronic type, and cases with well marked homicidal or suicidal

tendencies require by law to be housed and treated in mental hospitals, while mental deficiency can be dealt with most efficiently in certified institutions where there is proper scope for segregation, and where the defectives can be employed in useful and congenial occupations.

"The epilepsies present a problem of a different kind, because the severity of the disease varies over a wide range, some cases manifesting infrequent convulsive seizures with practically no mental impairment, while others have frequent epileptic seizures with gross mental impairment and even dangerous, erratic or homicidal tendencies. The more dangerous epileptic is found in the mental hospital, less severe cases of epilepsy with mental deficiency are sent to institutions for mental defectives, some are treated in the wards of general hospitals, while there are many mild cases carrying on as ordinary citizens in the community. Epileptics in general constitute a difficult problem, as they do not mix well with other patients, and it may be possible ultimately to effect more suitable segregation of the different types in a separate institution or part of an existing institution. As regards those patients under care in the hospitals or in Poor Law institutions, arrangements have been made by the Public Assistance Department to set aside a block of over 100 beds for adult male patients in the Southern General Hospital. The management of the epileptic patient, however, involving questions of the most suitable form of maintenance and segregation, does not enter into the remit except in so far as this affection may lend itself to early and curative treatment."

Two main groups of nervous disease remain to be considered. The first comprises the organic nervous diseases, in other words, the ordinary medical and surgical diseases of the nervous system, such as the various forms of paralysis, some forms of syphilis of the nervous system, locomotor ataxia, injuries to the brain and spinal cord, brain tumors, crippling due to poliomyelitis, etc. These conditions have a variety of causes known or unknown, and they form a considerable proportion of the patients admitted to the large and well equipped voluntary hospitals or to the general hospitals of the Corporation. With their modern equipment, surgical and medical specialist staffs, these hospitals are excellently adapted to treat patients suffering from those affections of the nervous system which are unaccompanied by mental disorder.

The remit raises the question whether these diseases of the nervous system, or any of them, should be separated out from the main current of provision for the medical and surgical treatment of the sick and be concentrated in a special hospital. Modern opinion tends to the view that it is unwise to multiply hospitals and clinics for special purposes unless for very weighty reasons. Transmission of infection does not enter into the question. Methods of treatment and of clinical and laboratory investigation, while to some extent highly specialised, are also closely bound up with the treatment and investigation of these disease processes which may attack the nervous system. For these broad reasons of policy, as well as of economy, it appears that the

balance of advantage lies in utilising the general hospital to the fullest extent for the treatment of organic diseases of the nervous system, and that any modern measures, such as the creation of a special department or the provision of special facilities, should be developed in connection with the general hospital rather than by the provision of an *ad hoc* institution.

The second remaining and important group of nervous diseases comprises those whose mental illness is likely to be of comparatively short duration. This group is roughly composed of (a) the psychoneuroses, such as neurasthenia, hysteria and anxiety states (or what is commonly called "nervous breakdown"); (b) cases of incipient insanity (mild states of depression or excitement); and (c) cases of bodily illness with symptoms of mental disturbance superimposed which are likely to abate *pari passu* with the bodily illness. In these latter cases the main consideration is the medical treatment of the affection causing the mental derangement. Owing to the nature of the conditions included in the above group, it is often extremely difficult, if not well nigh impossible, to differentiate between them at a single examination or without careful investigation. Consequently patients with mental symptoms require in many cases the facilities of a well equipped and staffed institution for the complete investigation and treatment of their condition both physical and mental.

The conception of the mental observation ward arose out of two main considerations. (a) It was recognised that many mental derangements, often of an acute and severe type, were in fact caused by some underlying disease, of which a good example is the "toxic insanities," such as may accompany puerperal fever, pneumonia, the acute infections, alcoholism, disturbances of the bodily secretions, etc. These constitute medical as well as psychological problems. As this aspect of the matter is of great importance, the experience and functions of the observation ward will be discussed. (b) A consideration of even greater importance is the opportunity which these facilities afford of avoiding the ponderous weapon of certification and admission to a lunatic asylum in the case of patients who have a chance of recovery within a reasonable time.

These are the main principles which the existing observation wards continue to follow. The remit raises the question whether all or any of the functions they perform, or might with better adaptation undertake, could be more successfully conducted in a special and separate institution for nervous diseases. In order to enable this question to be discussed with reference to the functions and utility of the existing accommodation for early mental disorder, it is necessary to consider in some detail the work of the observation wards.

Accommodation for mental patients is provided at the Eastern District Hospital (two wards, with 50 beds), at Stobhill Hospital (six wards and side rooms, with 208 beds), and a few beds at the Southern General Hospital. The facilities at the Eastern District Hospital date from about thirty years ago, and were a pioneer provision in this

country. The beds in Stobhill were recently increased to their present number, and now consist of a complete self-contained unit of three adjacent two-storey ward blocks.

These wards are known as "mental observation" wards, but this is only a partial description of a function which includes specialist diagnosis and active treatment. Their proper function is to investigate the causes of the mental disturbance, and apply appropriate treatment whether by the mental specialist or by the physician or by both, in collaboration with other specialists, with the aid of the laboratory and other scientific facilities available.

Many patients, after a period of observation and preliminary treatment, require to be removed to a mental hospital where, in the admission and hospital wards, the process of observation, investigation and treatment is further continued, and where the patient's recovery or improvement may take place after a more prolonged period of convalescence. In mental hospitals, it is the custom to retain patients in the hospital and convalescent wards as long as there is a possibility of recovery. In another considerable group, the mental condition is due to, or greatly aggravated by, bodily disease, and it is this class of patient which benefits most by treatment in the observation wards, where the utmost attention is given to the interrelation of the disease of the body with the functions of the brain.

It is clear, therefore, that the appropriate modern treatment of mental disorders raises issues of a difficult and varied character, as each patient constitutes an individual problem, involving the utmost possible specialist collaboration. The cardinal factor in the administration of mental disorders is to apply these principles at all stages, and particularly to the earlier manifestations, and if this can be done on a voluntary basis and without certification so much the better.

The functions of the observation wards, as they are at present conducted, will be illustrated from the following data. At Stobhill Hospital, which has the largest number of beds, 1,239 patients have been admitted since 15th May, 1930, and 1,074 discharged. As regards the Eastern District Hospital, 1,744 patients passed through the wards during the three years 1928-30. The following table summarises this information: -

	Eastern District Hospital, 1928-30,	Stobhill Hospital, 15/5/30-15/9/31.
Died,	130	112
Discharged improved,	352	328
Discharged fit for work, recovered, or much improved,	371	346
Transferred to Mental Hospitals,...	891	288
Total,	<u>1,744</u>	<u>1,074</u>

It will be observed from the above table that a considerable number of deaths take place in the mental observation wards. These consist

largely of old people and those who are admitted in the delirium of death from other causes than mental disease. There are only a very few deaths from melancholia, general paralysis of the insane, and brain tumour, or, strictly speaking, mental disease. On the other hand, there is a very considerable percentage discharged improved, fit for work, or much improved, while the remainder belong to the category of those found to be either incurably insane or requiring a very prolonged period of treatment. It will be understood, therefore, that the accommodation provided acts partly as a treatment centre and partly as a clearing house in respect of patients suffering from mental disorder.

Dr. Ivy M'Kenzie, physician in charge of the observation wards at the Eastern District Hospital, with which he has been associated since 1907, in addition to being certifying physician in lunacy since 1914, has furnished me with a report on his experience, from which the following extracts are taken:—

“The observation wards constitute an integral part of the development of lunacy administration in Glasgow during the past thirty years. This development is unique in this country, and has afforded the most efficient means in any country of applying the legal and therapeutic measures employed in dealing with the insane.

“A primary consideration in having the observation wards as part of a general hospital was and is that such an arrangement appeals to the patients and to the relations of the patients, and thereby facilitates treatment in borderland cases who would otherwise refuse to be treated in an asylum or in a special hospital which would, in any case, be indistinguishable from an asylum (now known as a mental hospital), no matter how small it might be. Without the observation wards it would be practically impossible to deal effectively with the large number of applications of a very varied character, and no special hospital built for the purpose would meet the situation.

“A large proportion of the cases are seniles and defectives and feeble and impoverished persons of middle age, who, by virtue of mental weakness and poverty require care and attention. The observation wards afford an indispensable centre for discrimination as to the provisions at the disposal of the authority for dealing with individual cases in view of the different circumstances.

“It is obvious that in dealing with a mental disease so-called, one meets with material essentially different from infectious disease or other diseases, which, on diagnostic examination, constitute more or less distinct entities. To suggest the use of a special hospital for mental disease implies first of all the recognition of special forms of disease apart from the various contingent circumstances of age, poverty, etc., which, in many instances, are the determining factors in the application for hospital treatment.

“These are, of course, special hospitals for the special treatment and study of mental diseases as such. Examples of these are the Maudsley in London, the Phipps Institution in America, the Kraepelin Clinic in Munich, and the Special Hospital in Amsterdam. These are, however, small hospitals with special cases, staffed by highly paid officials and run on expensive lines for scientific purposes. Such hospitals are, however, absolutely useless from the point of view of the every day necessities imposed by law on a large public body.

(1) “In my work in the observation wards I make a point of seeing the relatives of patients either at their own homes or at hospital, and keep in touch with all the conditions of the patients' illnesses.

(2) “I would draw attention to the fact that the observation wards at the Eastern District Hospital are not merely sorting-places to discriminate between asylum and non-asylum cases. The problem is very much larger than that.

(3) “At the present time the shortage of asylum beds and of provision for senile cases is the real problem of administration, and meantime cases have to be kept in,

and admitted to, the observation wards, when rightly speaking they should be transferred directly to an asylum or to suitable senile wards.

(4) "The staffing of the observation wards is of first-rate importance, and I am fortunate in my assistants and charge staff in my wards. The cases who make good recoveries invariably require very careful handling, as the patients themselves are not able to co-operate in their treatment till well on the road to recovery. Any special hospital would require to have a picked staff."

The above paragraphs describe the scope of the work performed in the observation wards. It is obvious that a great many differing types of mental illness in all stages of severity have to be admitted for treatment to these wards, but this is inevitable whatever form the provision for treatment may take.

In considering the merits of a special hospital in this connection, reference should be made to the Maudsley Hospital, London, which is considered to be the best example of a hospital for nervous diseases in this country. The following information is taken from the most recent available reports of the Medical Superintendent. This hospital has 157 beds, and the cost of maintenance is given as 84s. 9d. per week (nine months ending 31st December, 1926). Its function is described as follows:—"The most distinctive feature of the hospital is that it combines the characters of the neurological and psychiatric clinics of the Continent (treating organic nervous diseases, neuroses and psychoses) with those of hospitals in this and other countries on a universally voluntary basis which exclude cases of definite psychosis."

The conditions of admission are—(a) patients without a London settlement pay "the full maintenance rate at present reckoned at £5 per week (1924)"; (b) an undertaking by some responsible person as to provision of other arrangements for care (if necessary within 24 hours after receipt of notice). "This condition has proved an obstacle to admission on several occasions. But experience shows that it is unsafe in any case to exclude the possibility of marked change for the worse, which may necessitate the patient's immediate discharge when in this state or just by reason of it"; (c) the approval by the Medical Superintendent or his deputy as to the medical suitability of the proposed patient, generally involving a personal interview. "This condition of admission is that to which most exception has been taken. The experience of a year has only confirmed the view that this must be a rule with few exceptions, if the hospital is to be other than a clearing house to the mental hospitals of the country."

Even allowing for selection as above, a special hospital of this kind admits a great variety of types, and it is worth while quoting the views of the Medical Superintendent. "That aspect of the hospital which gives rise to most question is the admission of cases whose symptoms are extremely diverse as regards severity. Two types of comment are extremely frequent, that the patients in the quieter wards are not 'mental' at all, and that the more acute ones do not differ from those in ordinary mental hospitals. Neither of these comments is accurate, yet taken together they seem a sufficient answer to a common theoretical assertion that the reception or retention of severe cases will

deter application from suitable slighter ones, and that the treatment of the two should be entirely divorced. A somewhat contradictory criticism is that of those who maintain that selection of patients for treatment here rather than in an ordinary mental hospital should be based on relative mildness of symptoms rather than upon willingness and good prognosis. It must, of course, be admitted that structural facilities for complete separation of patients who are objectionable to others are desirable, but granted that these exist, I am convinced that the treatment of mild and severe cases in one hospital is practicable and advisable. This is essential in any clinic which attempts to provide teaching and opportunities for clinical study of mental disorder as a whole.

"If one attempts to admit even mild cases of mental disorder at a really early stage in the attack, and to treat them as long as there is reasonable hope of recovery, it is simply unavoidable to have special wards treating graver forms of psychosis. It is impossible at an early stage to distinguish cases that will become severe from those that will not in the given attack progress beyond neurosis."

These extracts indicate (a) that this institution endeavours to limit closely the type of patient admitted for treatment, and (b) that there are administrative difficulties inherent in any institution which caters for mental and nervous disorders in their early stages, principally because the necessity for adequate supervision is not always compatible with the degree of separation desired by many patients or their relatives.

Summary.—(1) The term "nervous diseases" embraces a wide range of affections. In the foregoing report these are discussed with reference to the remit, *i.e.*, the question of providing a special hospital for nervous diseases.

(2) The Local Authority has a statutory duty to provide for chronic cases and confirmed cases of insanity in asylums (now called "mental hospitals"). Their function and accommodation have been reported upon, and it has been pointed out that the hospital portions of these institutions are devoted to the active treatment and alleviation of mental disorders and the promotion of convalescence. It is, in fact, recommended by the General Board of Control for England that, as a further step under the Mental Treatment Act, extensions of accommodation should take this form for the treatment of "voluntary" patients and those admitted on the new "temporary" certificate, thus emphasising better curative provision and classification within the mental hospital itself. It is proposed to follow this principle in the extension to Hawkhead Mental Hospital now under consideration.

(3) Mentally defective patients also form a distinct and separate administrative group, requiring special consideration and appropriate provision, such as is being made at Lennox Castle.

(4) Epileptic patients similarly form a distinct class requiring a type of accommodation which does not come within the scope of the

remit. Special arrangements for adult males have been made by the Public Assistance Committee at the Southern General Hospital.

(5) Affections of the nervous system, when not accompanied by mental derangement, included in the group called organic nervous diseases, which are of many kinds and have many causes, are appropriately treated in general hospitals, where specialist medical or surgical treatment with the aid of laboratory and other facilities is available. Although knowledge of the causes, prevention and treatment of many nervous diseases is very imperfect, there does not appear to be any essential reason for dealing with them as a distinct group and providing for them a separate hospital. If need be, it would be preferable to establish a neurological unit within a general hospital.

(6) There remains the very important group of mental affections, briefly and roughly summarised as follows:—(a) Insanity in its early manifestations capable of treatment on a voluntary or temporary basis; (b) patients suffering from bodily illness with symptoms of mental derangement superimposed; (c) the various types of psychoneuroses, hysteria, neurasthenia, anxiety states (commonly called “nervous breakdown”). Owing to the great variety of these conditions and their varied requirements, their administration is difficult. Their treatment may be rapidly successful, or long and tedious, and the cause difficult to determine; they may become unsuitable for treatment outside of a mental hospital, while in some the condition is merely the prelude to incurable insanity. On the other hand, the psychoneuroses are, as a rule, amenable to treatment, and only exceptionally lead to insanity. These early affections have this feature in common, that they mostly require indoor observation and investigation with a view to diagnosis before they can be properly administered and the best lines of treatment determined.

(7) The existing service for this purpose is fully explained in the report. The accommodation consists of 208 beds at Stobhill Hospital and 50 at the Eastern District Hospital, with 18 at the Southern General Hospital.

(8) The full use of these beds is hampered by the difficulty of finding accommodation in mental hospitals or other appropriate institutions, which makes it necessary to retain in the observation wards patients who ought to be removed elsewhere.

(9) It is obvious that accommodation for early mental patients should be elastic, and that it should be possible within reasonable limits, having regard to the supervision required in the interests of patients themselves, to separate different groups in separate wards. With the expansion of the accommodation at Stobhill, approved by the Committee and now in use, there will be six wards with their side rooms, arranged in three separate two-storey blocks. This group of adjacent buildings is capable of functioning as a separate unit for the observation, classification and specialist treatment of mental disorders, with better grouping of patients, as experience may dictate. This

accommodation can thus be developed as a psychological unit of a general hospital, which is in accord with modern views.

(10) It is very doubtful whether a separate hospital could in practice subserve all these functions. Those that exist perform much more limited services, select their patients with great discrimination, and do not cater for those who are likely to require removal to a mental hospital. On the other hand, it may be that the psychological unit of a general hospital, as above defined, will be found inadequate or unsuitable to cover the whole field of administration of early mental disorders, and that some further provision may be necessary as an expansion of this service. An important objection to the establishment of a separate institution for mental disorders is that the public have come to regard with favour a procedure which enables mental patients to be treated like other patients in a general hospital; indeed, they agree to treatment the more readily because of this very fact.

The arguments for and against the provision of a special hospital for the treatment of nervous diseases, and especially for the preventive treatment of early mental disorders, have been carefully considered.

This proposal must be judged in the light of modern views, which strongly favour a policy of concentration rather than separation of hospital services unless for very cogent reasons.

As regards medical and surgical diseases of the nervous system, it is neither desirable nor necessary to create new provision independently of and apart from the general hospital facilities required for the treatment of sick persons generally.

A similar conclusion applies to provision for the institutional treatment of bodily affections accompanied by mental symptoms.

For the reasons stated in the report, I am of opinion that provision for the treatment of mental and nervous disorders in their early stages should remain, and continue to develop as an integral part of general hospital provision along the recognised lines of what may be termed the psychological unit.

The accommodation which now exists can be made to serve this purpose, although its proper function is at the moment handicapped by lack of accommodation in the mental hospitals.

In particular, the ward blocks at Stobhill Hospital, with over 200 beds, having the advantage of being self-contained and reasonably isolated, are suitable for a service of this kind in so far as the special claims of patients with early mental disorders can be at present assessed.

There are considerable difficulties of administration due to the varied types of patients to be dealt with, but the policy most expedient at the moment should be to utilise the existing facilities to the best advantage, making such alterations, adaptations, or even additions, as may be found by experience to be advisable."

A. S. M. MACGREGOR.

It will be seen from the foregoing reports that the difficulty of finding accommodation for certified mental cases has been acute during the year, and that very little relief can be expected until the proposed new certified institution for mental defectives at Lennox Castle is completed and functioning.

The mental observation wards at Stobhill and Eastern District Municipal General Hospitals have been working to capacity throughout the year, and many cases have been treated in them which would ordinarily have required certification and removal to mental hospitals. A large number of the cases have been of the senile type, where, owing to restlessness and dementia consequent on the disintegrative changes of old age, it has been impossible for them to remain at home. It seems a pity that these old people should have to end their days in mental hospitals, and, to avoid this stigma, these cases have as far as possible been retained in the observation wards without certification. Owing to this retention of senile cases and to the general shortage of asylum accommodation involving frequently considerable delay in the removal of insane patients from the wards to the asylum, and in addition to the fact that many mental defectives have had to be accommodated in these wards through lack of accommodation in certified institutions, the work of the observation wards has been greatly hampered, and they have not been able to fulfil to a proper extent the functions for which they were intended. However, many cases of incipient insanity, psychoneuroses, and the like have been treated with satisfactory results and, in addition, a considerable number of general paralytics have been treated by inoculation with malaria, also with satisfactory results.

The following table shows the number of cases treated in the wards during the year and their disposal.

MENTAL OBSERVATION WARDS.

	Stobhill.			Eastern District.		
	M.	F.	Total.	M.	F.	Total.
Remaining at 1st January, 1931,	67	63	130	25	25	50
Admitted during 1931,	554	431	985	232	204	436
Number treated during year 1931,	621	494	1,115	257	229	486
Number discharged home or transferred to poorhouse during 1931,	269	232	501	110	99	209
Number died during 1931,	54	39	93	21	22	43
Number removed to Asylum, ...	203	162	365	101	87	188
Number remaining as at 1st January, 1932,	95	61	156	25	21	46

Report on Mental Hospitals.—The three mental hospitals at Gartloch, Woodilee and Hawkhead have continued to fulfil their functions throughout the year, and in the following tables will be found the details.

TABLE I.
SHOWING ADMISSIONS, DISCHARGES AND DEATHS IN THE MENTAL INSTITUTIONS DURING THE
YEAR ENDED 31st DECEMBER, 1931.

	GARTLOCH.			WOODLEE.			HAWKHEAD.			TOTALS.		
	M.	F.	Totals.	M.	F.	Totals.	M.	F.	Totals.	M.	F.	Totals.
On Register at 31st December, 1930, ...	424	387	811	684	572	1,256	487	380	867	1,595	1,339	2,934
Number of Cases admitted during the year, ...	72	64	136	82	56	138	76	75	151	230	195	425
Total Cases under care during the year, ...	496	451	947	766	628	1,394	563	455	1,018	1,825	1,534	3,359
<i>Cases discharged and died during the year—</i>												
Recovered, ...	14	23	37	13	11	24	29	30	59	56	64	120
Not recovered, ...	9	17	26	16	8	24	15	4	19	40	29	69
Died, ...	23	28	51	55	44	99	30	38	68	108	110	218
Transferred to other Institutions in Scotland, ...	4	—	4	4	5	9	18	2	20	26	7	33
Total Cases discharged and died during the year, ...	50	68	118	88	68	156	92	74	166	230	210	440
Total Cases on Register at 31st December, 1931, ...	446	383	829	678	560	1,238	471	381	852	1,595	1,324	2,919

TABLE II.
SHOWING THE LENGTH OF RESIDENCE OF CASES DISCHARGED RECOVERED AND OF CASES
WHO HAVE DIED DURING THE YEAR ENDED 31st DECEMBER, 1931.

Length of Residence.	GARTLOCH.						WOODLEE.						HAWKHEAD.						TOTALS.					
	Recovered.			Died.			Recovered.			Died.			Recovered.			Died.			Recovered.			Died.		
	M.	F.	M.	M.	F.	M.	M.	F.	M.	M.	F.	M.	M.	F.	M.	M.	F.	M.	M.	F.	M.	M.	F.	M.
Under 1 month,...	...	1	—	—	3	1	—	—	5	3	2	—	2	—	2	2	3	1	7	9				
1 to 3 months,	1	3	2	1	2	—	—	7	5	2	5	2	4	3	5	8	13	9					
3 to 6 "	...	5	6	2	—	2	4	5	6	5	5	9	2	4	12	19	10	9						
6 to 9 "	...	6	5	2	4	5	2	4	4	2	4	3	3	5	15	10	9	11						
9 to 12 "	...	—	3	1	2	—	2	4	—	—	1	2	1	—	1	7	6	2						
1 to 2 years	...	—	2	1	4	3	2	6	4	4	6	6	3	5	9	10	13							
2 to 5 "	...	1	2	3	5	—	1	7	9	6	4	9	11	7	7	19	25							
Over 5 "	...	1	1	12	9	—	—	16	16	3	1	6	7	4	2	34	32							
Total,	...	14	23	23	28	13	11	55	44	29	30	30	38	56	64	108	110							

TABLE III.
SHOWING THE FORMS OF MENTAL DISORDER IN THE ADMISSIONS, RECOVERIES,
AND DEATHS DURING THE YEAR 1931.

FORMS OF MENTAL DISEASE.	ADMISSIONS.			RECOVERIES.			DEATHS.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.

Congenital Mental Defect, ...	14	15	29	1	5	6	7	10	17
Epileptic Insanity, ...	8	8	16	—	—	—	5	4	9
General Paralysis, ...	21	10	31	7	—	7	21	8	29
Manic Depressive Psychosis, ...	36	39	75	10	24	34	6	5	11
Involutional Melancholia, ...	10	14	24	2	4	6	4	2	6
Dementia Præcox, ...	40	11	51	15	9	24	9	2	11
Dementia Paranoides, ...	3	4	7	—	—	—	—	—	—
Paranoia, ...	5	1	6	—	—	—	4	1	5
<i>Confusional Psychosis—</i>									
(a) Puerperal and Lactation, ...	—	9	9	—	3	3	—	—	—
(b) Alcoholic, ...	11	2	13	7	2	9	3	—	3
(c) Others, ...	12	11	23	8	7	15	1	4	5
<i>Dementia—</i>									
(a) Senile, ...	28	34	62	2	1	3	20	40	60
(b) Organic, ...	20	17	37	1	2	3	18	19	37
(c) Secondary, ...	4	1	5	—	—	—	6	9	15
Delusional Psychosis (Non-systemised), ...	17	19	36	3	7	10	4	6	10
Encephalitis Lethargica, ...	1	—	1	—	—	—	—	—	—
Total, ...	230	195	425	56	64	120	108	110	218

It will be noted from the above table that the largest proportion of the admissions is included under the groups manic depressive psychosis, dementia præcox, and senile dementia. Recovery is most marked in the manic depressive and dementia præcox groups, while of the total deaths a considerable preponderance is noticeable in the senile and organic dementia groups and in general paralytics. This is in accordance with expectations, as very little in the way of recovery can be expected in cases where disintegration has occurred in the brain tissues leading to dementia.

DISEASE.

AGE DISTRIBUTION.

FEMALES.

MALES.

Diseases of the Nervous System—

Organic Brain Disease, ...
 General Paralysis of the Insane, ...
 Cerebral Haemorrhage, ...
 Epilepsy, ...
 Exhaustion from Acute Mania, ...
 Exhaustion from Acute Melancholia, ...
 Cerebral Meningitis, ...

Diseases of Circulatory System—

Cardio-vascular Degeneration, ...
 Valvular Disease of Heart, ...
 Phlebitis and Cellulitis, ...

Diseases of Respiratory System—

Acute Lobar Pneumonia, ...
 Broncho-Pneumonia, ...
 Hypostatic Pneumonia, ...
 Bronchitis, ...
 Pulmonary Tuberculosis, ...
 Acute Pleurisy, ...

Diseases of the Alimentary System—

Carcinoma, ...
 Perforated Gastric Ulcer, ...
 Acute Intestinal Obstruction by Vol-
 vulus, ...
 Haemorrhage of Bowel, ...

Diseases of Genito-Urinary System—

Chronic Nephritis, ...
 Uræmia, ...

General Diseases—

Senile Decay, ...
 Non-Pulmonary Tuberculosis, ...
 Diseases of the Ductless Glands, ...
 Debility, ...
 Melanotic Carcinoma, ...
 Septicæmia, ...

	-20	-30	-40	-50	-60	-70	+70	Total.	-20	-30	-40	-50	-60	-70	+70	Total.	Grand Total.
Organic Brain Disease, ...	...	...	...	1	3	2	1	7	...	...	1	...	7	8	...	16	23
General Paralysis of the Insane, ...	1	...	6	6	6	1	...	20	1	...	...	3	3	1	...	8	28
Cerebral Haemorrhage, ...	...	...	...	1	4	6	2	13	...	...	...	...	2	2	3	7	20
Epilepsy, ...	...	...	...	1	1	...	...	1	1	...	...	...	...	...	...	1	2
Exhaustion from Acute Mania, ...	...	1	1	1	...	...	...	2	...	...	...	...	3	...	...	3	5
Exhaustion from Acute Melancholia, ...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1
Cerebral Meningitis, ...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	1
Cardio-vascular Degeneration, ...	1	1	1	2	3	6	7	21	1	...	2	1	2	2	4	12	33
Valvular Disease of Heart, ...	...	...	...	...	...	...	...	1	...	...	1	1	1	...	1	4	5
Phlebitis and Cellulitis, ...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	1
Acute Lobar Pneumonia, ...	...	...	...	1	1	...	...	2	...	...	...	...	...	...	...	...	2
Broncho-Pneumonia, ...	1	2	4	1	3	1	...	12	...	...	1	...	...	2	2	5	17
Hypostatic Pneumonia, ...	...	1	1	1	...	...	2	5	...	...	...	...	1	3	6	10	15
Bronchitis, ...	...	1	...	...	...	1	2	4	...	...	...	...	...	1	...	1	5
Pulmonary Tuberculosis, ...	1	2	...	...	2	1	...	6	1	...	...	3	2	1	...	7	13
Acute Pleurisy, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1
Carcinoma, ...	...	...	...	...	...	1	1	2	...	...	...	...	...	...	1	1	3
Perforated Gastric Ulcer, ...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Acute Intestinal Obstruction by Vol- vulus, ...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	1
Haemorrhage of Bowel, ...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Chronic Nephritis, ...	...	...	...	1	1	...	...	2	...	...	...	1	...	...	...	...	2
Uræmia, ...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1
Senile Decay, ...	...	...	...	...	...	1	4	5	...	...	...	...	...	3	22	25	30
Non-Pulmonary Tuberculosis, ...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	2
Diseases of the Ductless Glands, ...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	2	2
Debility, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Melanotic Carcinoma, ...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	1
Septicæmia, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1
	5	7	15	15	26	21	19	108	3	4	6	12	21	25	39	110	218

5 7 15 26 21 19 108 3 4 6 12 21 25 39 110 218

TABLE V.

SHOWING THE PROBABLE CAUSES OF INSANITY IN THE
THE PATIENTS ADMITTED TO THE MENTAL HOSPITALS DURING
YEAR ENDED 31st DECEMBER, 1931.

Etiological Factors.							Males.	Females.	Total.
1. Mental Stress, ...	...	...	...	...	...	...	23	26	49
2. Adolescence, ...	...	...	...	...	...	...	15	2	17
3. Pregnancy, ...	...	...	...	...	...	...	—	1	1
4. Puerperium, ...	...	...	...	...	...	...	—	9	9
5. Climacteric, ...	...	...	...	...	...	...	5	11	16
6. Senility, ...	...	...	...	...	...	...	26	34	60
7. Bodily Ill-health and Exhaustion, ...	...	...	...	...	...	...	24	17	41
8. Alcoholism and Drug Addiction, ...	...	...	...	...	...	...	38	12	50
9. Syphilis, ...	...	...	...	...	...	...	26	13	39
10. Constitutional Inferiority, ...	...	...	...	...	...	...	17	23	40
11. Organic Brain Disease, ...	...	...	...	...	...	...	15	13	28
12. Epilepsy, ...	...	...	...	...	...	...	6	9	15
13. Disorders of Ductless Glands, ...	...	...	...	...	...	...	—	1	1
14. War Strain, ...	...	...	...	...	...	...	9	—	9
15. Congenital, ...	...	...	...	...	...	...	14	16	30
16. Encephalitis Lethargica, ...	...	...	...	...	...	...	7	—	7
17. Unascertained, ...	...	...	...	...	...	...	32	11	43
18. Injury, ...	...	...	...	...	...	...	8	2	10
19. Previous Attack, ...	...	...	...	...	...	...	8	10	18
Totals, ...							273	210	483

In connection with this table it should be borne in mind that in the causation of every mental illness there are many factors, each and all of which may have a distinct influence in precipitating the mental disorder. Such factors as personality, domestic and economic conditions, state of bodily health, and many others must be considered when assessing the probable cause of the condition. In this table the cause assigned in each case, although merely one of many factors, has been adjudged to have had an important bearing on the development of the illness.

Under the heading "mental stress" are included such conditions as domestic or business worries, adverse circumstances, etc., while under "bodily ill-health" are included malaria, influenza, gastric troubles, rheumatism, and the like.

WOODILEE MENTAL HOSPITAL.

On 31st December, 1931, the number of patients on the register was 1,238 (678 males and 560 females) as compared with 1,256 (684 males and 572 females) on 31st December, 1930, showing a decrease of 6 males and 12 females. The average daily number on the register was 1,250·36 (680·87 males and 569·49 females).

One hundred and thirty-eight cases were admitted, of which number 82 were males and 56 were females, a decrease of 102 (68 males and 34 females) as compared with the previous year.

Twenty-four (13 males and 11 females) or 17·39 per cent. of the admissions were discharged recovered. Thirty-three (20 males and 13 females) were discharged as relieved or transferred to other asylums.

The number of deaths was 99, of whom 55 were males and 44 were females.

Admissions.—The number of cases admitted (138) is the lowest number admitted in any year since the hospital was opened in 1875. This low admission rate cannot, however, be looked upon as showing that insanity in the Glasgow District is on the decrease, but is due to the fact that there was so little accommodation for the admission of new cases. Our hospital wards and observation wards are hopelessly overcrowded and at the present time the overcrowding in these wards is to the extent of 50 male beds and 52 female beds. In 35 per cent. of those admitted the age was over 60 years; 28 were over 60, 18 were over 70 and two over 80 years of age.

Service Patients.—On 31st December, 1931, there were 40 private patients on the register, *i.e.*, 33 service patients, whose maintenance charge is met by the Ministry of Pensions, and 7 ex-service patients, whose maintenance is paid by the General Board of Control from a special Exchequer Grant. During the year three patients were classified as “service” patients by the Ministry of Pensions. One service patient was discharged recovered, two service patients were discharged as relieved and three service patients died.

Forms of Mental Disorder.—Of the 138 cases admitted during the year, twenty-eight (19 men and 9 women) suffered from senile dementia. Sixteen (9 men and 7 women) suffered from organic dementia. Fourteen (8 males and 6 females) showed marked signs of congenital or infantile mental defect, and in five of these epilepsy was present. The cases of general paralysis of the insane numbered eleven (9 males and 2 females). Ten cases (8 men and 2 females) suffered from dementia præcox and ten cases (4 men and 6 women) suffered from recent melancholia. The remaining forms of mental disorder will be found in the statistical tables.

Probable Causes of Mental Disorder.—The outstanding probable factors ascertained to be either predisposing or exciting causes of the mental breakdown in those admitted were as follows:—

Senile decay in 28 cases or 20 per cent.
 Hereditary predisposition in 22 cases or 16 per cent.
 Mental stress in 20 cases or 14 per cent.
 Previous attacks in 18 cases or 13 per cent.
 Intemperance in 14 cases or 10 per cent.
 Syphilis in 14 cases or 10 per cent.

The other probable causes of mental breakdown in the cases admitted are shown in the statistical tables.

The Discharges.—The percentage of recoveries calculated on the total number of admissions was 17·39 per cent. This is a very low percentage and much below the average for Woodilee, but can be accounted for to a large extent by the hopelessly incurable cases admitted—cases suffering from incurable bodily or incurable forms of mental disease. Most of the curable cases are kept and treated in the Mental Observation Wards at Stobhill Hospital and the Eastern District Hospital. Then again, in connection with this Mental Hospital, there is a home for imbecile children and the cases received there are the worst type of congenital idiocy and imbecility, and these cases are admitted as ordinary patients under the Lunacy Acts.

The Deaths numbered 99 (55 males and 44 females). The death-rate calculated on the average daily number resident was 7·9 per cent. (8·0 per cent for males and 7·7 per cent. for females). The chief causes of death will be found in the statistical tables.

General Health.—The general health of the patients and of the staff has on the whole been good. I regret very much, however, to have to record the death of no less than four members of the staff—Mr. Balmer, our House Steward on 19th January, 1931; Miss Catherine McDonald, our Head Cook, on 20th April, 1931; Attendant David Stirling, on 26th June, 1931, and Attendant John Reid, on 11th October, 1931.

Staff.—The training of the attendants and nurses has been carried on as usual. At the May Examination for the Royal Medico-Psychological Association Certificate, seven nurses and three attendants presented themselves for the Final Examination; all but one passed, and two of the nurses gained the Certificate with Distinction. For the Preliminary Examination 21 nurses and 2 attendants presented themselves and of these 15 passed. At the November Examination, 2 presented themselves for the Final Examination and both passed. For the Preliminary Examination, 12 nurses entered, but only 50 per cent. passed. Forty-nine attendants and 54 nurses hold the Certificate of the Royal Medico-Psychological Association for proficiency in mental nursing.

The Institution Shop has proved a great boon to the patients, especially on Visiting Days when their friends can take them out there for a cup of tea.

Numerous charabanc drives were much enjoyed by both male and female patients during the summer months. The usual weekly dances and cinema performances were held throughout the winter. Cricket and football were played in their respective seasons, and the annual athletic sports were held in July. Three combined concert and dance entertainments were held during the winter months.

The whole institution has for the first time been linked up with a very complete and efficient telephone system. This has proved a great boon and a marked saving of time to the administrative staff.

I wish to express my most grateful thanks to Dr. Dick, medical, nursing and attendant staffs, and indeed to every member of the staff, for the loyal and capable and willing assistance they have at all times given me in the discharge of my duties.

HENRY CARRE,
Medical Superintendent.

GARTLOCH MENTAL HOSPITAL.

The admission rate was again low, the number of patients admitted being 136, but this was entirely due to the lack of accommodation.

The death rate, representing a percentage in the case of males, of 5.3 on the average daily number of males—437.7, and in the case of females, of 7.3 on the average daily number of females—380.9, was lower than last year, which was the lowest previously recorded. In only three cases was death due to acute disease.

The noticeable feature of the new admissions is the large percentage of unrecoverable cases, many of whom require permanent accommodation in hospital wards, thus further taxing the already over-burdened hospital accommodation. The lack of a reserve of hospital beds is especially felt during epidemics of cold or influenza, when convalescent patients are frequently returned to their wards earlier than expedient to make room for fresh cases of illness.

The necessity for the provision of new reception wards becomes more urgent annually owing to the increasing proportion of chronic cases, at present about two-thirds of the number, accommodated in the present admission wards. The mixing of newly admitted cases with frequently the worst types of chronic cases is undoubtedly detrimental to the welfare of new cases. With regard to the cases under care in the institution, an interesting feature is the alteration in the relative proportions of male and female cases of general paralysis; at the end of the year there were nine males and 13 females suffering from the disease.

During the year arrangements were made for the improvement of the water supply for fire emergencies by the installation of three new electrically driven pumps to replace those worn out at the pond in the grounds and at the underground reserve water tank. These improvements are in course of completion, and it is hoped that when completed they will ensure an adequate supply of water for fire emergencies and will also effect considerable economy by utilising more fully for flushing purposes the water in the pond which is supplied by surface drainage, instead of the much more expensive gravitation water.

A. M. DRYDEN,
Medical Superintendent

HAWKHEAD MENTAL HOSPITAL.

During the year there were admitted 75 female patients and 76 male patients. This is the lowest number of admissions for a considerable number of years. This reduction in the number of admissions unfortunately does not represent any lowering in the incidence of mental disorder occurring in the district for which the hospital is provided, rather it is due to inability to receive new cases through lack of accommodation.

The cases discharged recovered numbered 59, comprising 29 males and 30 females. The average recovery rate was, therefore, 39 per cent. of admissions.

No outbreak of infectious disease fell to be reported. The general health of the institution was good, and it is particularly gratifying that no cases of enteric fever occurred. Fifteen female patients are isolated in the special enteric carrier hospital. Of these, 12 have remained as the result of the outbreak which occurred during the years 1922-1927. Three are boarders sent from other districts, namely, Renfrew District Asylum, Dykebar, Banff District Asylum, and Smithston Asylum, Greenock.

Treatment of general paralysis by means of malaria, protein therapy, and arsenical preparations has been continued with very favourable results as compared with those obtained by older methods.

During the year waiting rooms for visitors to male and female patients were opened. These have proved to be very useful adjuncts to the institution and have been much appreciated by the visitors.

The farm continues to be a very useful asset to the institution, both in the way of providing exercise and healthy occupation for the male patients and in supplying an abundance of tubercle-free milk, eggs, and fresh vegetables to the institution.

Regular weekly entertainments were provided throughout the winter, and these were greatly appreciated by a large number of the patients. Special thanks are due to various amateur companies in Glasgow, Renfrew and Paisley who have given dramatic and operatic performances with great acceptance. The British Red Cross Society and Order of St. John gave a donation of a hundred volumes to the library of the institution.

J. H. MACDONALD,
Medical Superintendent.

CERTIFIED INSTITUTIONS FOR MENTAL DEFECTIVES

The Certified Institutions for Mental Defectives at Stoneyetts, Lennox Castle, and Blinkbonny have continued working to their utmost capacity throughout the year, and no relief is to be expected till the extension to Lennox Castle has been completed and is functioning.

The following particulars are the details in respect of these institutions.

STONEYETTS, LENNOX CASTLE, AND BLINKBONNY CERTIFIED INSTITUTIONS.

	Males.	Females.	Total.
On register, 31st December, 1930,	290	267	557
Admissions,	25	7	32
Discharges,	19	3	22
Deaths,	8	5	13
On Register, 31st December, 1931,	288	266	554
<i>Admissions—</i>			
<i>From—</i>			
Caldwell House Certified Institution,	2	2	4
Knightswood Hospital,	1	—	1
Eastern District Hospital,	4	1	5
Own Homes,	4	1	5
Larbert Certified Institution,	6	—	6
Stobhill Hospital,	1	—	1
Southern General Hospital,	5	—	5
Hawkhead Asylum,	1	—	1
State Institution, Perth,	1	—	1
Waverley Park Certified Institution,	—	1	1
From other Certified Institutions,	—	2	2
<i>Grade of Mental Defect of Admissions—</i>			
Idiots,	—	—	—
Imbeciles,	16	2	18
Feeble-minded,	9	4	13
Moral Imbecile,	—	1	1
<i>Discharges—</i>			
To other Institutions,... ..	18	3	21
Discharged on expiry of Certificate,	1	—	1

New workshops have been erected during the past year, and are now in occupation. The workshops comprise shoemaker's shop, engineer's shop, painter's shop, and slater's shop. The plumber's and tinsmith's departments are being enlarged, and generally all these departments will accommodate more workers from the patients.

C. CHISLETT,
Medical Superintendent.

MENTAL DEFICIENCY.

Arrangements were made in May, 1931, for a survey of all cases living in their own homes in the city who had been notified to the Parish Council by the Education Authority under the 1913 Act as being unsuitable for special schools. A clinic is held once a week at 20 Cochrane Street, and particulars are recorded of each case that reports, along with a recommendation as to the form of treatment most suitable.

Owing to the lapse of time since they were originally reported to the Parish Council, many of the cases have not been traced for various reasons, many having died, others having left the district, and others having been admitted to institutions. In several cases the defectives were unfit to attend the clinic, and arrangements are being made to visit them in their homes.

Out of a total number of 469 cases notified to attend during the period ending on 31st December, 1931, 181 attended, and 37 were placed on a domiciliary visit list. Of the 181 examined at the clinic, 162 were recommended, whether owing to their mental condition or to unsatisfactory home conditions, for admission to a certified institution. In 71 of the cases, the recommendation was for urgent admission to an institution. Fourteen were fit for low-grade training at occupation centres; three were recommended for re-examination with a view to re-admission to a special school; and in only two was there a clear recommendation for no change in their present conditions.

When the survey has been completed, periodic examinations of these cases will be made until arrangements have been made for their satisfactory disposal in their homes, under guardians or in institutions.

